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RESULTS OF THE NTS EXPERIMENT PHASE II

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14 May 1980

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Analysis of the enlarged set of Special Data Collection System (SDCS) data showed that all P waves observed in the WUS (Western United States) showed a significant loss of high frequency energy compared to losses at the Canadian station RKON. While magnitude differentials at most WUS stations conformed to previously reported WUS-EUS (Eastern United States) bias patterns after crustal amplification corrections have been made, Nevada Test Site (NTS) stations showed higher amplitudes than expected on the basis of their t* data. Still, they were significantly lower in amplitude than RKON's. At present this can

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RESULTS OF THE NTS EXPERIMENT-PHASE II

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ABSTRACT

Analysis of the enlarged set of Special Data Collection System (SDCS) data showed that all P waves observed in the WUS (Western United States) showed a significant loss of high frequency energy compared to losses at the Canadian Station RKON. While magnitude differentials at most WUS stations conformed to previously reported WUS-EUS (Eastern United States) bias patterns after crustal amplification corrections have been made, Nevada Test Site (NTS) stations showed higher amplitudes than expected on the basis of their t* data. Still, they were significantly lower in amplitude than RKON's. At present this can only be explained by local focusing.

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INTRODUCTION

This report presents the results of the second phase of the Nevada Test Site (NTS) experiment. While stations in the Western United States (WUS) are no longer confined to the Nevada Test Site (NTS) in this phase of the work, the name "NTS experiment" will remain in use for the project, even though a more proper name might be "reciprocal attenuation measurement project." In this phase the recording stations were moved to locations shown in Figure 1. At NTS a second station, OB3NV, was set up next to OB2NV. OB2NV remained in its previous position on the Climax Stock, and the Pahute Mesa stations were moved to the Yucca Flats, a broad alluvial valley south of the Climax Stock. Four sensors (YFNV, YF2NV, YF3NV and YF4NV) were set up in the Yucca valley in positions shown in Figure 2; all these stations were recorded digitally. In addition to the NTS stations, two digitally recording stations, RKON and HNME, remained in place. To extend the number of sites sampled, Special Data Collection System (SDCS) stations were set up at the sites of the FAULTLESS explosion (FANV) in Nevada and the GASBUGGY explosion (GBNM) in New Mexico, and also above the Tatum salt dome in Mississippi (TQMS), the site of the SALMON nuclear explosion. FANV, GBNM and TQMS recorded on analog magnetic tape. The approach and methods used in data analysis are similar to those used in the first phase of the NTS experiment described in Seismic Data Analysis Center (SDAC) TR-77-7 and TR-77-9 (Der et al., 1977a,b). Geographical coordinates of all the stations discussed in this report are given in Table VII.

In addition to discussing data obtained from the second configuration of seismic stations, we will interpret it, along with data from the first configuration; the same will be done with the total data set when the project is completed. The experiment provides individual Δm_b and Δt^* values for a fairly

Der, Z. A., M. S. Dawkins, T. W. McElfresh, J. H. Goncz, E. G. LaPella, and M. D. Gillispie, 1977a, Teleseismic P wave amplitudes and spectra at NTS and selected Basin and Range sites as compared to those observed in Eastern North America, NTS experiment - Phase I, Final Report; SDAC-TR-77-7, Teledyne Geotech, Alexandria, Virginia.

Der, Z. A., M. S. Dawkins, T. W. McElfresh, J. H. Goncz, E. G. LaPella, and M. D. Gillispie, 1977b, Teleseismic P wave amplitudes and spectra at NTS and SHOAL site as compared to those observed in eastern North America, Preliminary Report; SDAC-TR-77-9, Teledyne Geotech, Alexandria, Virginia.

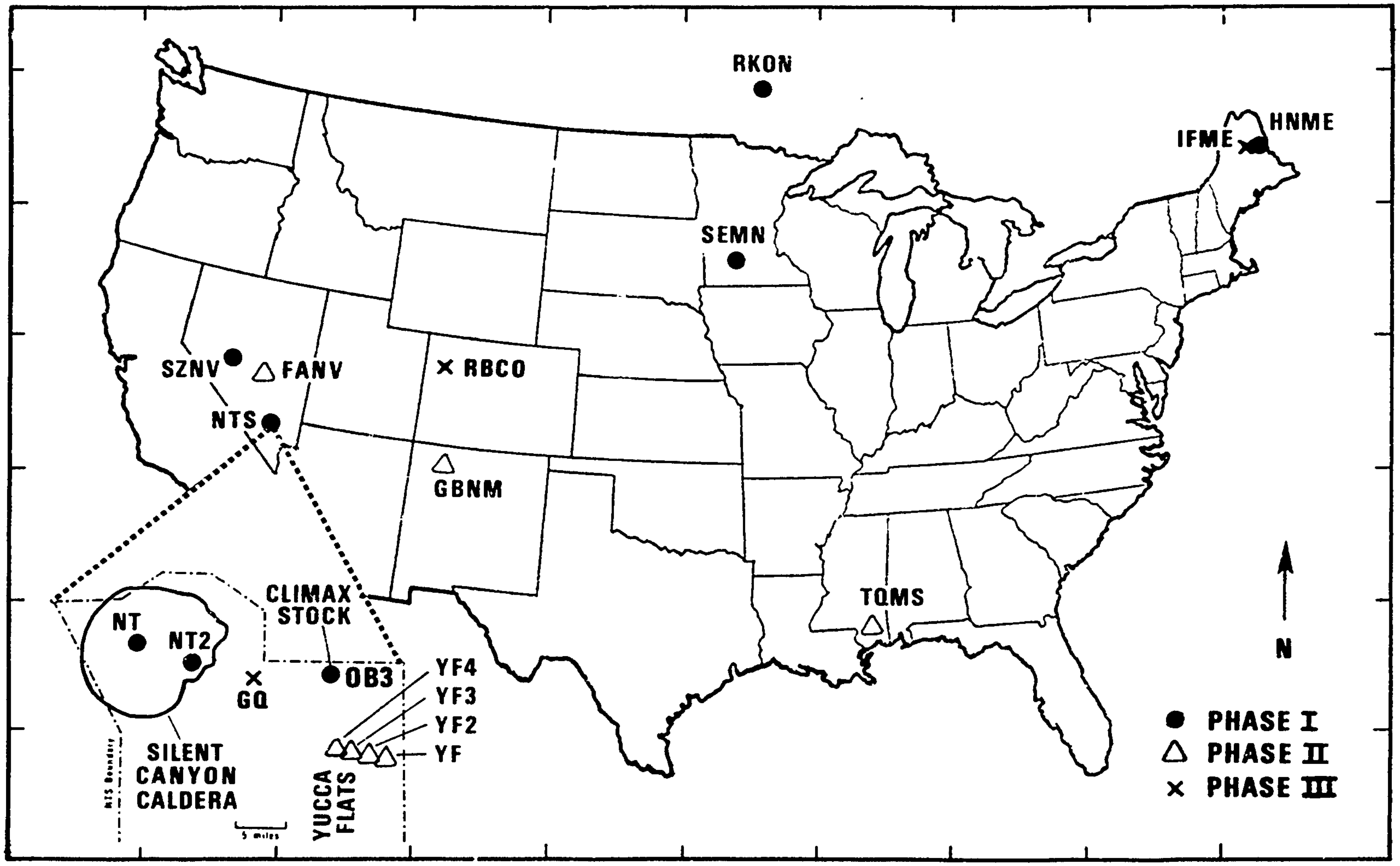

Figure 1. Location of the SDCS stations used in this report.

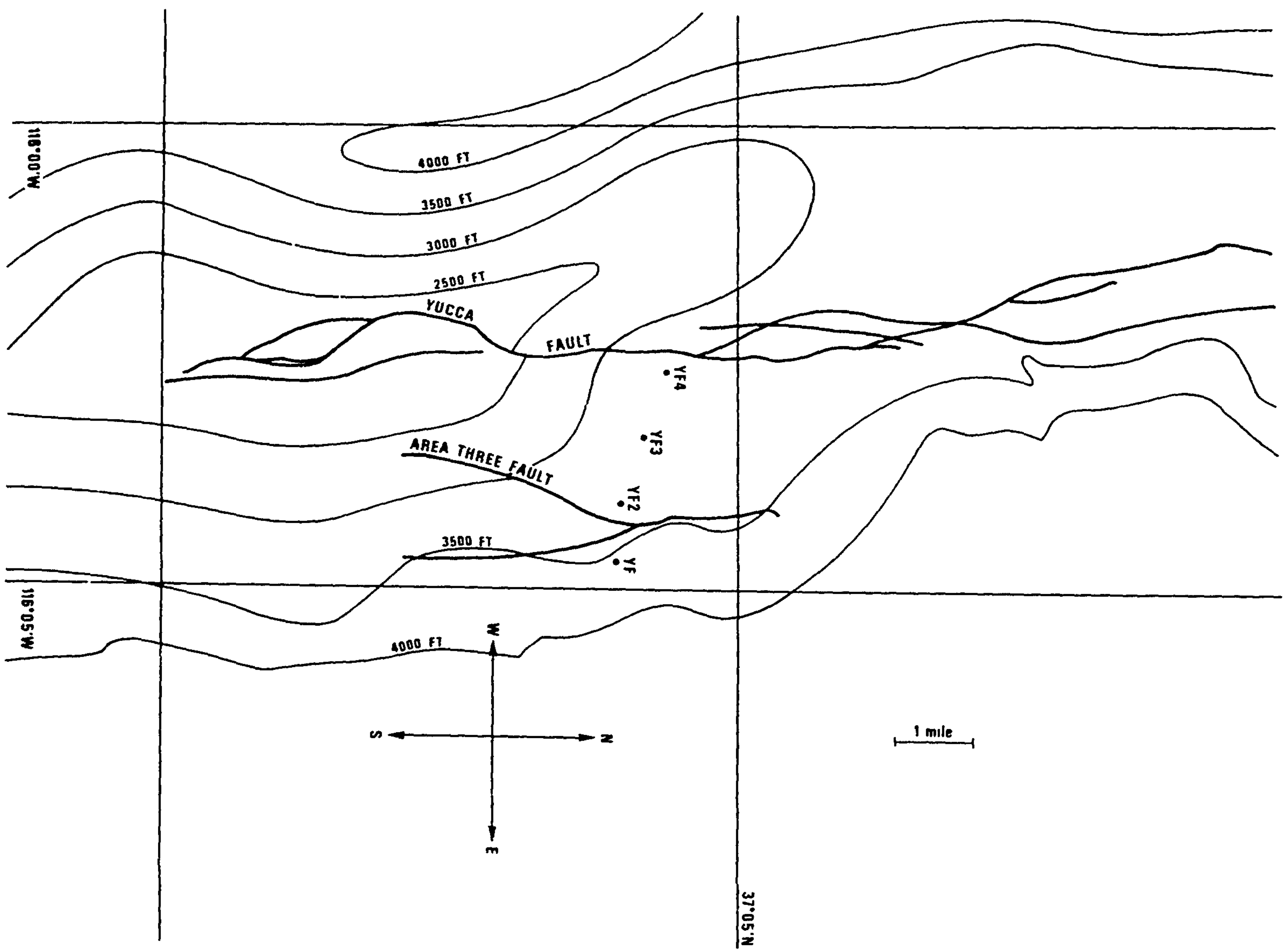

Figure 2. Location of the SDCS stations and major faults at Yucca Flats.

large set of stations. These, and the estimates of crustal amplification A_c, facilitate study of inter-relationships between Δm_b, Δt^* and A_c.

DATA ANALYSIS

General

With few refinements, analytical tools used in Phase II closely follow those used in Phase I (Der et al., 1977). For example, magnitude residuals were determined by a least squares adjustment procedure over the SDCS station network instead of taking direct differentials. The results of the least squares scheme are more reliable because all data were taken into account rather than data limited to the common readings at the station pair under study, but the results are modified only slightly by the least squares procedure. In addition to the standard Haskell matrix method for computing the crustal response, finite difference (FD) calculations were also used to estimate the effect of geological structures at Yucca Flats. (The added refinements do not affect the basic conclusions of the report.) Part of the analyses, the calculations of t* for short period S waves, are included in a separate report (Smart et al., 1978). Events used for analysis, along with the amplitude and period readings and the computed magnitudes, are listed in Appendix A.

Epicentral data were taken from various lists such as the Network Event Processor (NEP) bulletin and the Hagfors array bulletin. This was necessary because searching the data (especially digitally recorded data) was impractical because of limited accessibility to the PDP-15 computer and the need to have some epicenters determined and available for data reduction. The epicentral distance range was limited to $25° < \Delta < 85°$, thus eliminating the effect of complications from upper-mantle travel time triplications at smaller distances and the effects of the core mantle boundary beyond $\Delta = 85°$. Film playbacks of the analog stations were used extensively for amplitude readings because of the limited capability of analog to digital conversion on the PDP-15. Selected signals were subsequently digitized for spectral analysis.

Smart, E. Z. A. Der and A. H. Chaplin, 1978, Short period S wave attenuation under North America, SDAC-TR-78-6, Teledyne Geotech, Alexandria, Virginia, in preparation.

Body Wave Magnitude Measurements

In past SDCS experiment reports, biases between stations were computed directly using the magnitude differential average from selected key station pairs. While this approach was less complex, it did not take into account measurements that involved only one station of the pair in question. However, even though operational difficulties (non-overlapping station life-times) imposed epicentral distance criteria, and highly variable noise conditions hindered P amplitude measurements for most events at all stations, all measurements should optimally be utilized.

During the first phase of the project, the standard deviation of relative m_b differentials between the stations was found to be a strong function of distance between stations Physically, this stemmed from loss of signal coherence with relative distance resulting from multipathing, source radiation patterns, and changes in crustal structure. Figure 3 shows a plot of the standard deviation of a single m_b differential measurement versus the logarithm of epicentral distance (in degrees); the relationship appears to be linear. Table I is a tabulation of data points in this figure. The total variation over the range of relative distances between stations is five-fold, which is quite large. Thus, the accuracy of Δm_b will largely depend upon distances between stations.

To incorporate all measurements into determining magnitude differentials across the SDCS network, as well as to take into account the effect of signal coherence as manifested in the $\sigma_{\Delta m_b} - \Delta°$ relationship, a least squares scheme has been devised. For a given event we write the magnitude differentials between pairs of stations i and j in the form

$$\Delta m_b^i - \Delta m_b^j = {}^k\Delta m_b^{ij} + \varepsilon_{ij}(\Delta°_{ij}) \qquad (1)$$

where Δm_b^i is the station term (bias) of station i, ${}^k\Delta m_b^{ij}$ is the observed magnitude differential between station i and j for event k and $\varepsilon_{ij}(\Delta° ij)$, an error term dependent upon the distance $\Delta° ij$ between the stations. The expected value of this error term

$$E\,[\varepsilon_{ij}^2\ (\Delta°)] = \sigma_{\Delta m_b}^2\ (\Delta_{ij}^{\circ})$$

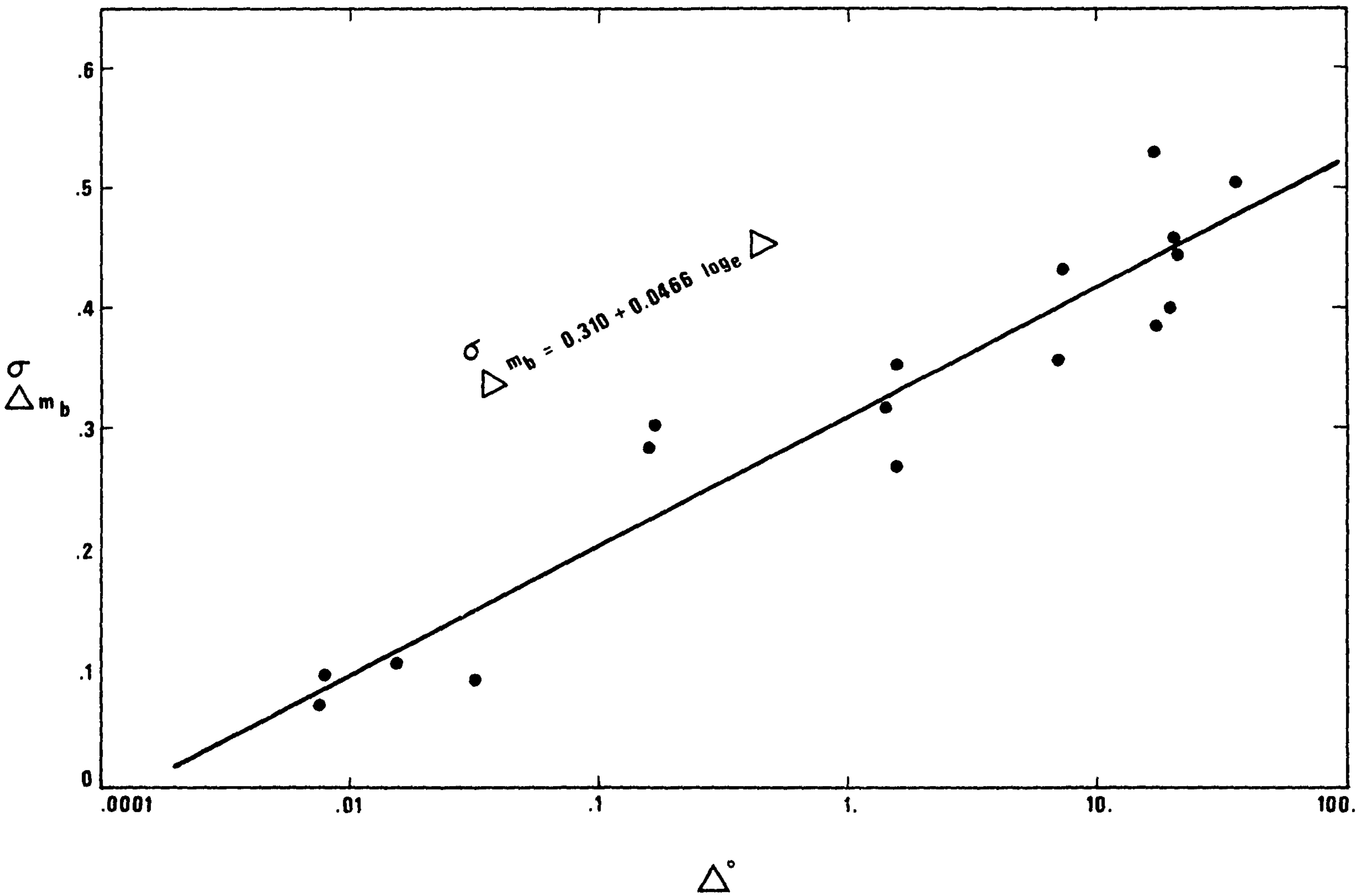

Figure 3. Standard deviation of the m_b differentials as a function of interstation distance.

TABLE I

Standard deviation of the magnitude differentials versus interstation distance.

Station Pair	$\Delta°$	$\sigma_{\Delta m_b}$	N	Δm_b least squares diff.	Δm_b single diff.
OB2 - OB3	0.00789	.095	113	-0.016	-0.016
YF - YF2	0.00768	.069	47	-0.064	-0.077
YF - YF3	0.0158	.104	33	-0.128	-0.095
YF - YF4	0.0318	.091	36	-0.107	-0.079
YF4 - OB2	0.161	.283	35	0.413	0.413
GB - OB2	7.09	.357	89	0.058	0.062
FA - OB2	1.41	.319	108	-0.020	-0.014
FA - GB	7.39	.432	160	-0.078	-0.063
HN - RK	17.61	.385	71	-0.040	-0.099
RK - OB2	20.97	.456	167	0.156	0.146
HN - OB2	36.50	.505	58	0.116	0.141
YF - FA	1.58	.353	42	0.326	0.321
YF - GB	7.04	.400	30	0.248	0.208
RK - FA	20.04	.401	52	0.176	0.150
RK - GB	17.16	.530	46	0.098	0.126
RK - YF	21.05	.446	32	-0.150	-0.223
YF4 - FA	1.57	.268	31	0.433	0.440
YF - OB2	0.17	.303	50	0.306	0.304

$$\sigma_{\Delta m_b} = .310 + .107 \log_{10}\Delta°$$

Goodness = .9

N_p = 18

can be read from the regression line in Figure 3 as a function of distance.

Because taking differences in all possible combinations is redundant, a hierarchy of stations was assigned, and we used the leftmost available station bias term as the reference (positive) term in equation (1). The hierarchy chosen was

OB2, OB3, YF, YF4, YF2, YF3, NT, NT2, FA, GB, RK, HN.

It was selected to optimize the distance distribution so that most of the distances used, and consequently values of $\sigma_{\Delta m_b}$, are as small as possible. Thus OB2, at the center of the NTS cluster and located between GB and FA, is the prime candidate for the most commonly used reference station, while RK and HN are outliers and rank low. We also chose $\Delta m_b = 0$ for OB2, which merely defined the reference for other Δm_b (we could have chosen any other station). Magnitudes computed without division by the dominant period T_j (called m_a') were adjusted in a similar manner.

The results are summarized in Figure 4, and in Table II, which consider all data from the first two phases of the NTS experiment and also compare the SHOAL site (SZNV) with the Sleepy Eye, Minnesota (SEMN) site. The SZNV-SEMN comparison was placed within the framework of the NTS experiment by assuming that RKON and SEMN possess identical attenuation and amplitude properties. This assumption was reasonable because both sites are located on the Canadian Shield granite. All quantities in Figure 4 are relative to the station OB2NV. The top of the figure shows the raw magnitude residuals. At stations located on the shield (HNME, RKON and SEMN), m_b values seem to be high relative to OB2NV. At NTS, stations on Yucca Flat and the Pahute Mesa are also high, while RANV, GBNM, and OB3NV are at about the same m_b level as OB2NV. SZNV (assuming the equivalency of the SEMN-RKON pair) is low in m_b relative to OB2NV. The plot of quantities m_a' (magnitude without division by T_j) follows the pattern of Δm_b, indicating that amplitudes primarily determine Δm_b variation despite the fact that the RKON-OB2NV differential in m_a' becomes statistically insignificant if the division by T_j is removed. The values of $\Delta m_b'$ are not available for SZNV.

Directly determined m_b, m_a' and T_j differentials for selected stations are also shown, as histograms, in Appendix B. Because these are not adjusted in the least squares sense, they are somewhat different from numbers given in Table II.

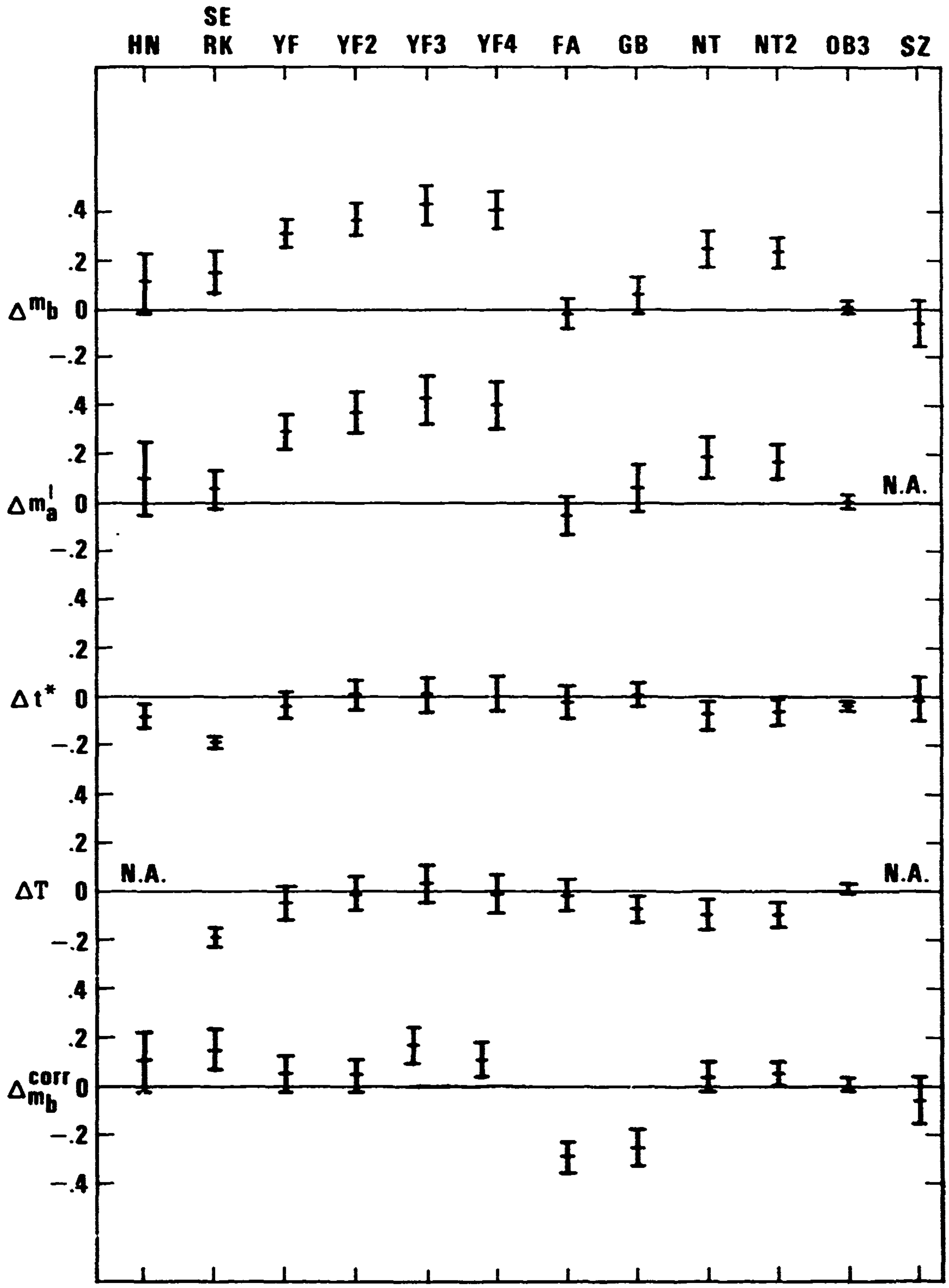

Figure 4. Summary of Δm_b, $\Delta m'_a$, Δt^*, ΔT, and Δm_b^{corr} (corrected for crustal effects) relative to OB2NV.

TABLE II

Magnitude differentials Δm_b, $\Delta m'_a$, ΔT, and Δm_b^{corr} and t* relative to OB2NV for the stations discussed in this report.

	Δm_b	$\Delta m'_a$	Δt^*	ΔT	Δm_b^{corr}
HNME	.116 ± .119	.100 ± .144	-.078 ± .051	N.A.	.116
SEMN RKON	.156 ± .071	.055 ± .086	-.187 ± .015	-.192 ± .038	.156
YF	.306 ± .056	.294 ± .068	-.040 ± .050	-.051 ± .071	.046
YF2	.370 ± .065	.367 ± .079	.014 ± .055	-.011 ± .067	.050
YF3	.434 ± .076	.436 ± .092	-.016 ± .063	.032 ± .074	.164
YF4	.413 ± .080	.403 ± .097	.006 ± .062	-.013 ± .073	.113
FA	-.020 ± .061	-.055 ± .074	-.036 ± .054	-.020 ± .068	-.288
GB	.058 ± .074	.033 ± .089	.013 ± .050	-.068 ± .052	-.252
NT	.246 ± .072	.186 ± .087	-.070 ± .060	-.100 ± .060	.03
NT2	.237 ± .057	.175 ± .069	-.060 ± .050	-.100 ± .05	.027
OB3	.016 ± .018	.016 ± .023	-.036 ± .019	.007 ± .027	.016
SZ	-.064 ± .09	N.A.	-.017 ± .090	N.A.	-.064

Possible Bias Effects in m_b Due To Variable Thresholds and Noise Levels

The criteria set for amplitude measurement required that S/N be greater than 3. Thus, event pairs were eliminated when one of the stations had S/N < 3. Because these measurements could be those with the low signal at station A relative to station B, the average amplitude at A could be overestimated relative to B at low magnitudes (Herrin and Tucker 1972, von Seggern and Blandford 1976). Only if the great majority of all readings is considerably above the 3:1 S/N level can such bias in the average be ruled out. We have chosen to plot the differentials of m_b for selected station pairs against the average m_b for the same two stations. Pronounced trends in plots such as these indicate biases in procedures used for determining Δm_b. A slight change of $|\Delta m_b|$ with increasing magnitude might also suggest a shift of corner frequency of seismic sources to lower frequencies. This shift would be more visible at a high Q than at a low Q station. Absence of a clear trend indicates that bias in Δm_b from variable noise levels is not significant.

Figures 5 through 11 show such plots for a selected set of key station pairs. None of these plots, including the most critical pair RKON-OB2NV, suggests a clear trend and, therefore, bias effects from our procedure are probably negligible. Note that the noise level is approximately 2 times higher at RKON than at OB2NV. However, the raw amplitudes on the film (magnitude at 1 Hz, not amplitude corrected at T, or A/T) also average 2 times higher at RKON. Thus, the average expected S/N is the same and no bias would be expected.

Herrin, E. and W. Tucker, 1972, On estimation of body wave magnitudes, Report to the AFOSR: Dallas Geophysical Observatory, Southern Methodist University, Dallas, Texas.

von Seggern, D. H. and R. Blandford, 1976, Seismic threshold determination; Bull, Seism, Soc. Am., 66, 753-788.

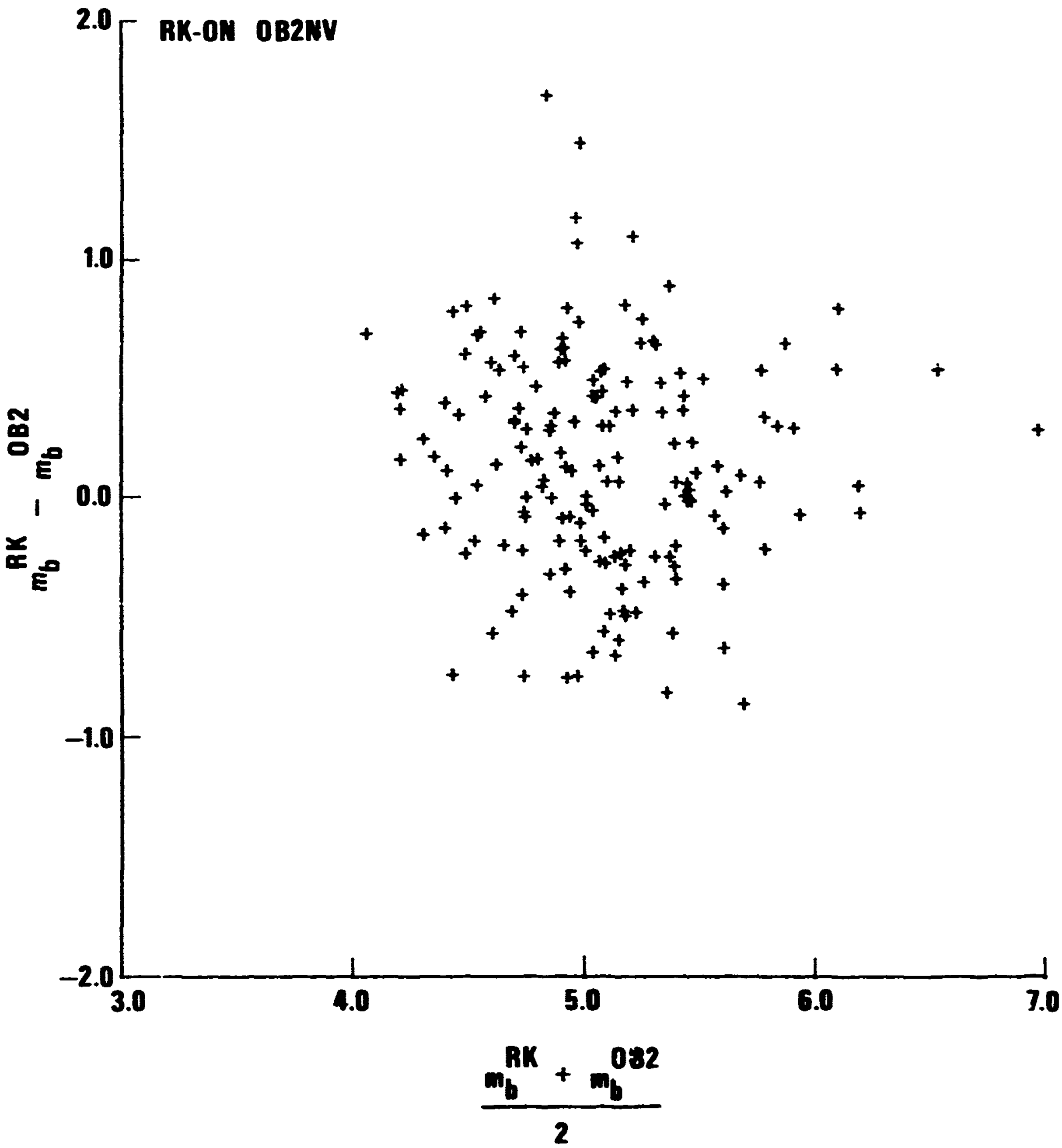

Figure 5. Δm_b versus averaged magnitude for the station pair RKON-OB2NV.

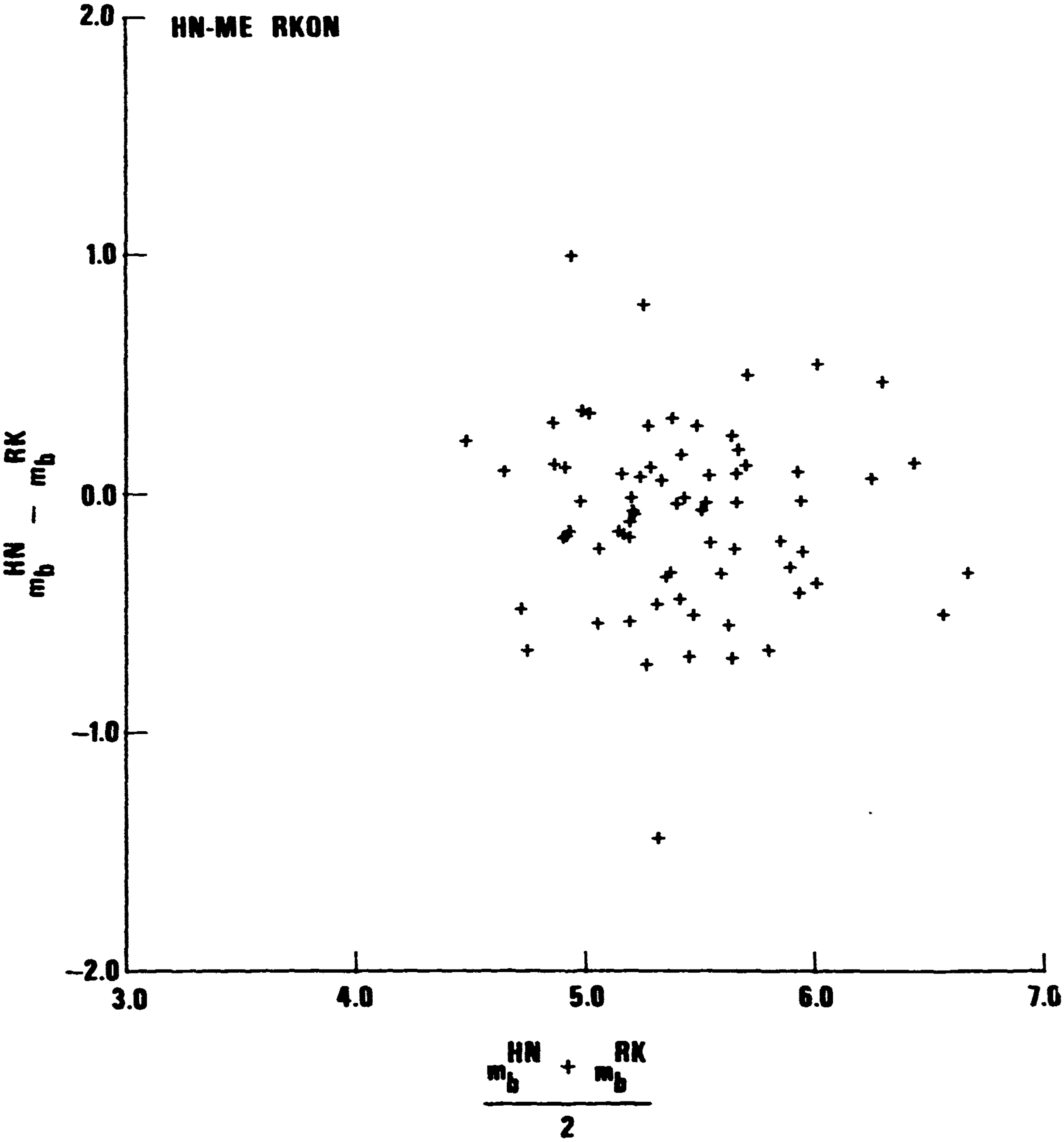

Figure 6. Δm_b versus averaged magnitude for the station pair HNME-OB2NV.

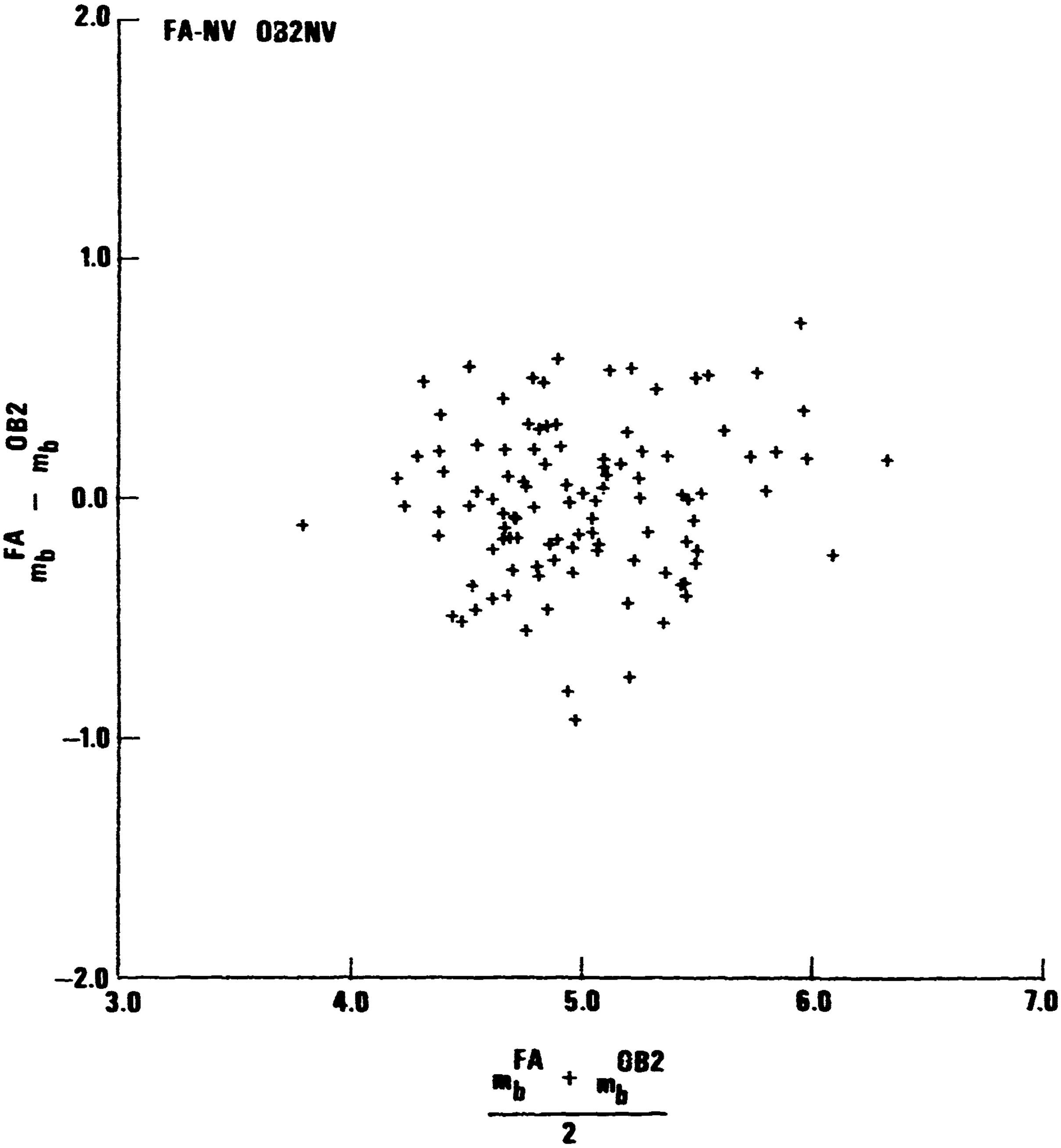

Figure 7. Δm_b versus averaged magnitude for the station pair FANV-OB2NV.

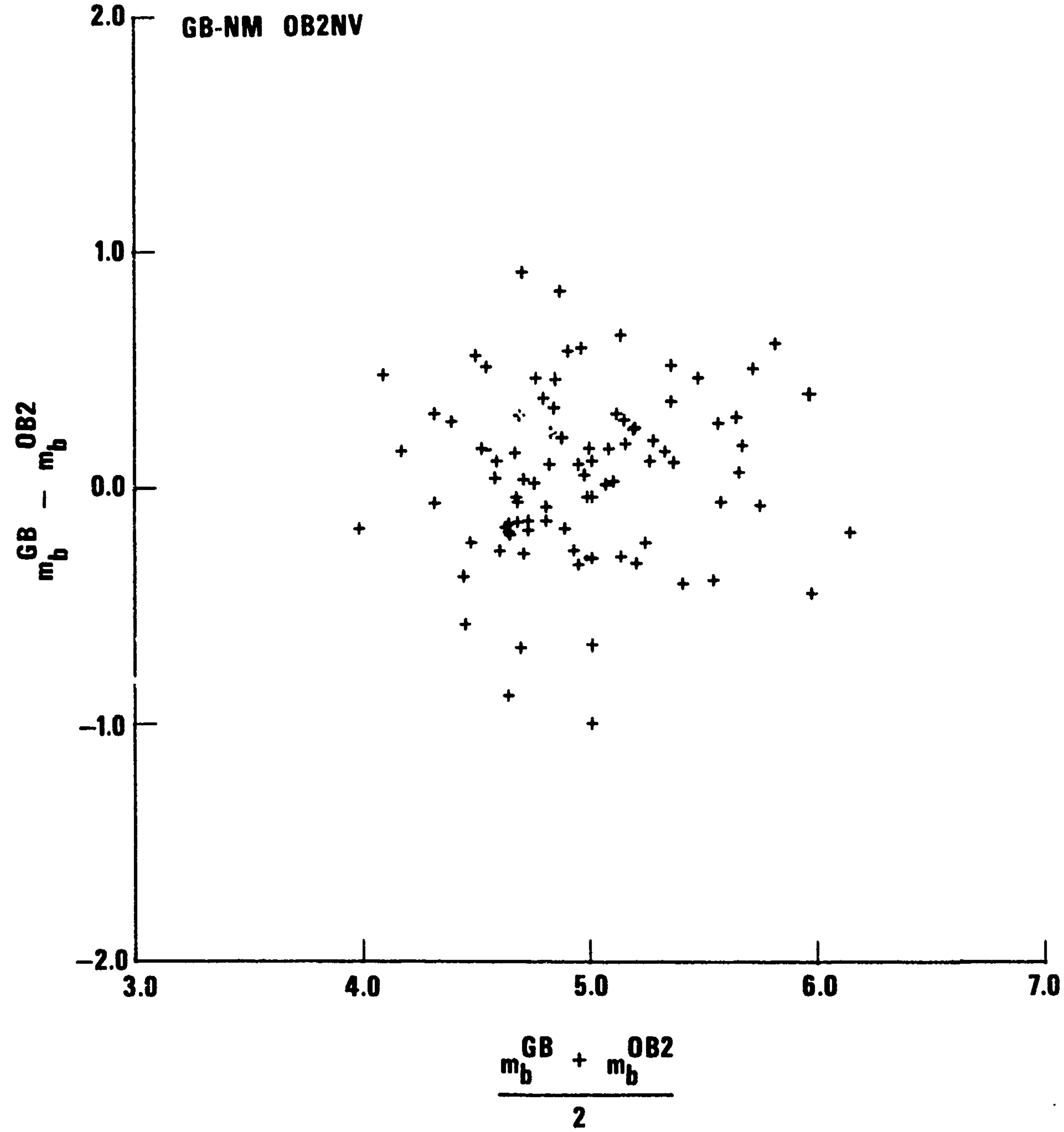

Figure 8. Δm_b versus averaged magnitude for the station pair GBNM-OB2NV.

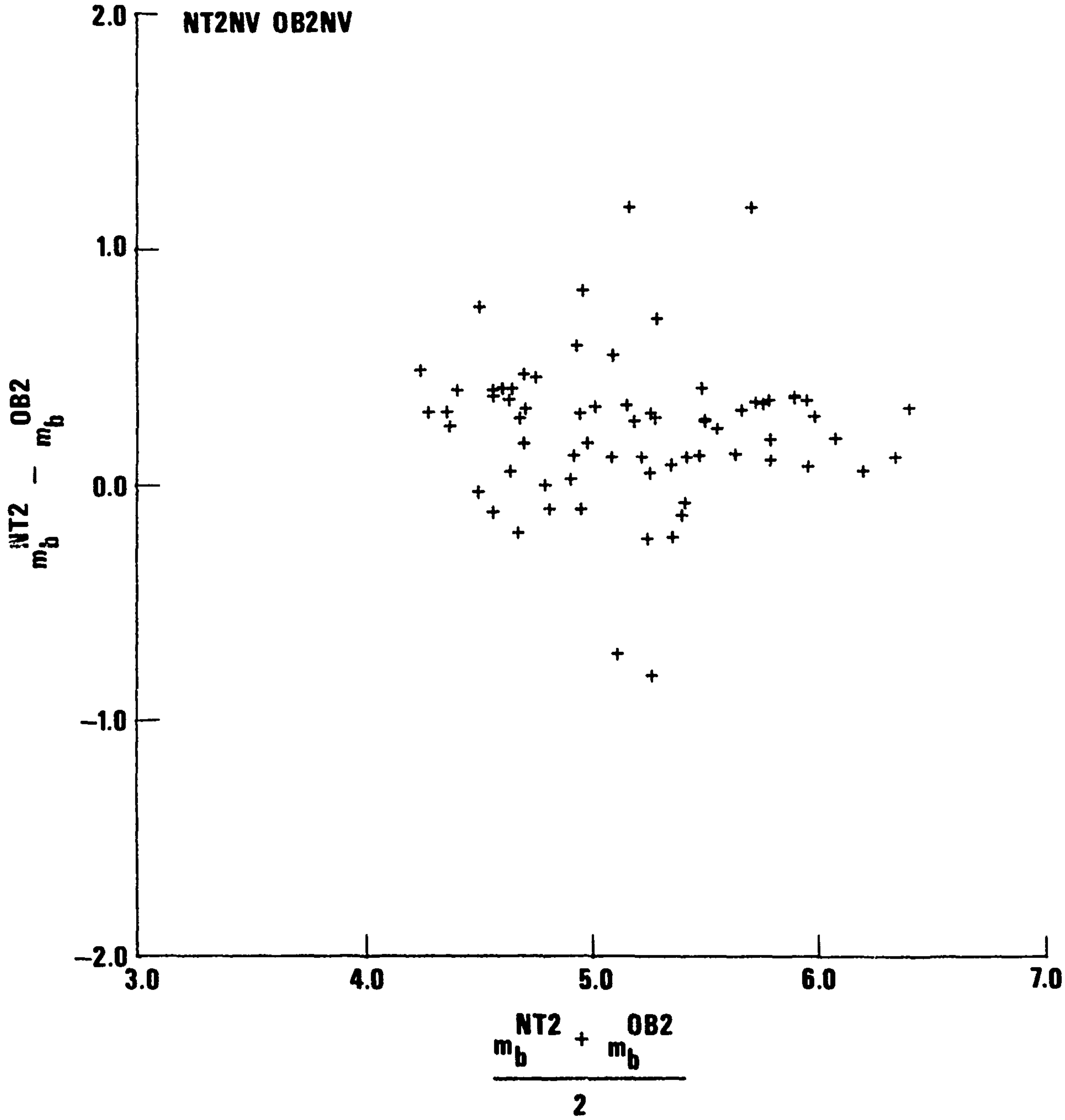

Figure 9. Δm_b versus averaged magnitude for the station pair NT2NV-OB2NV.

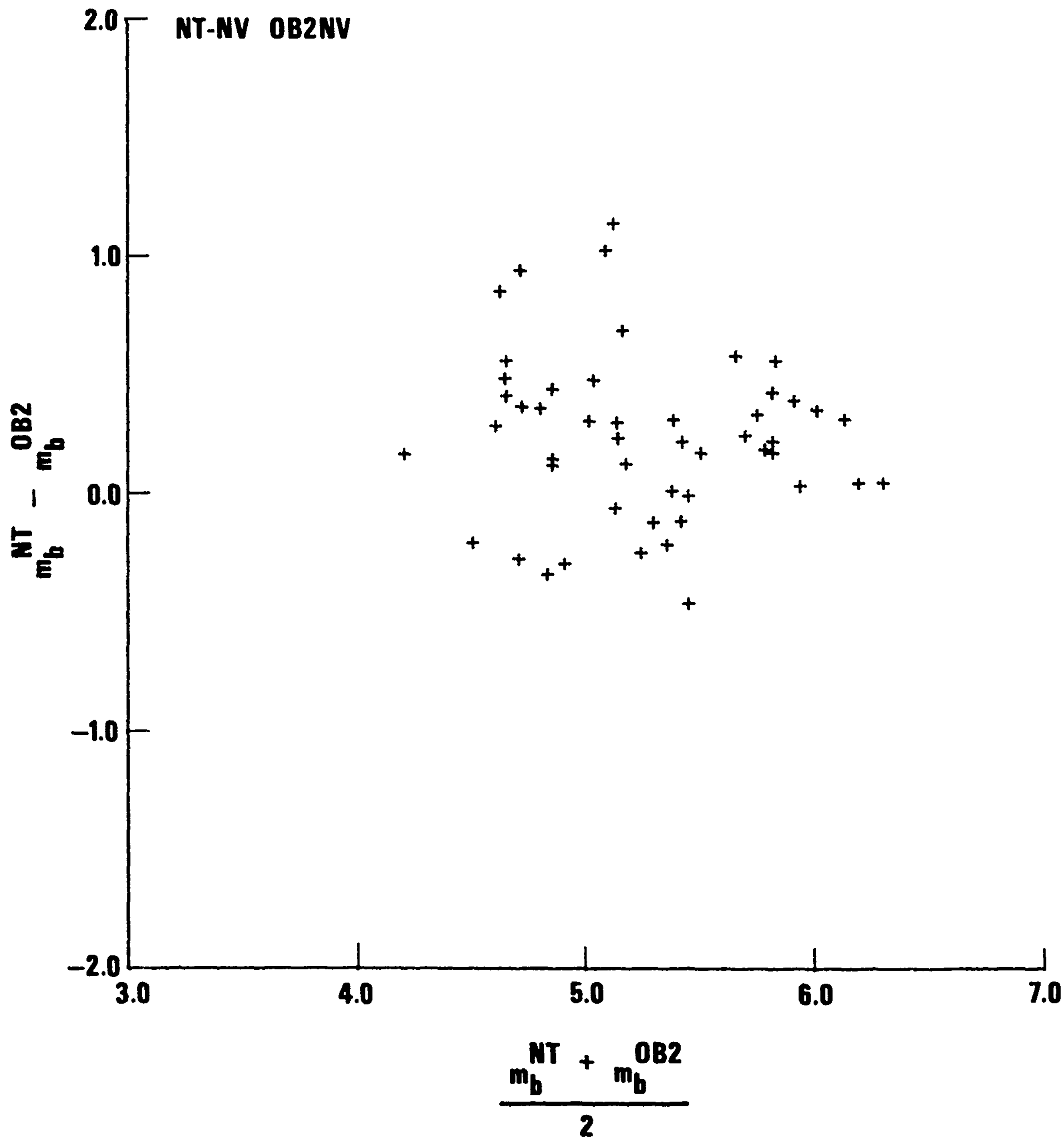

Figure 10. Δm_b versus averaged magnitude for the station pair NTNV-OB2NV.

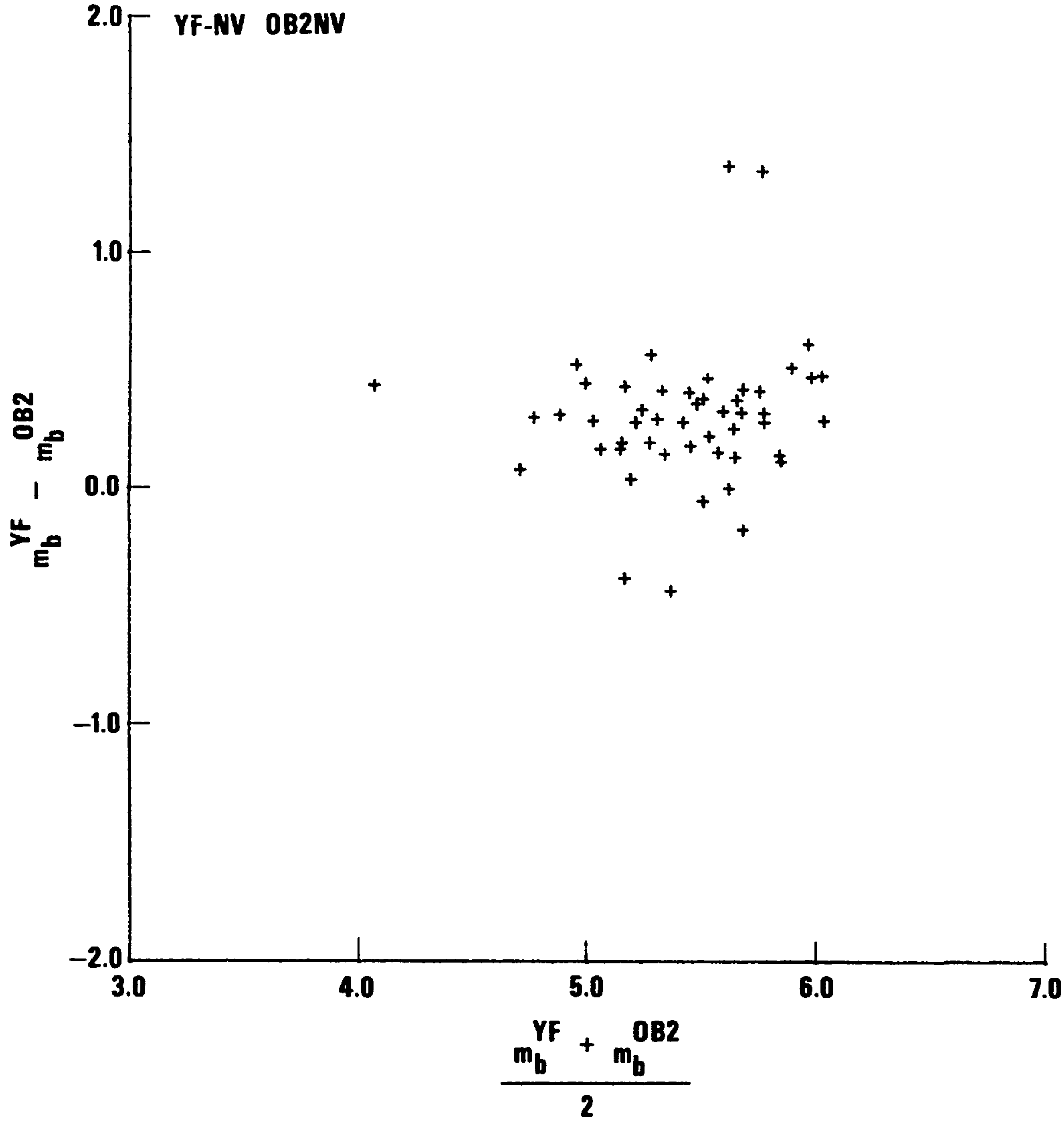

Figure 11. Δm_b versus averaged magnitude for the station pair YFNV-OB2NV.

CALCULATIONS OF THE CRUSTAL RESPONSE

In this report, as in the previous NTS experiment report, we attempted to estimate the crustal contribution to the observed magnitude bias at each observing station. The Yucca Flats sites rest on thick unconsolidated sediments and tuff that cause considerable signal amplification (Houser, 1968; Fernald et al., 1968; Healy, 1968; Ramspott and Howard, 1975; Hays and Murphy, 1971). The FANV site is also located over alluvium and tuff, but according to test site information, the alluvium is more consolidated at this site (McKeown and Dickey, 1969); (Lt. Col. George Bulin of ARPA also provided us with data relevant to the FANV site). Alluvium and a thick sedimentary carbonaceous-shale sequence also underlay the GASBUGGY site (Thornbrough, 1971). Because the part of the structure that primarily determines crustal amplification was found near the surface, the structures were modeled only down to the basement (Der, McElfresh and Mrazek, 1977), which was assumed to have the same elastic properties as the granite stock at OB2NV that was modeled by a simple homogeneous halfspace. This similarity makes the pulse sizes of the

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Houser, F. N., 1968, Application of geology to underground nuclear testing, Nevada Test Site, Geol. Soc. Am. Memoir, #110, E. B. Eckel, Editor, Boulder, Colorado.

Fernald, A. T., G. S. Corchary, W. P. Williams and R. B. Cotton, 1968, Surficial deposits of Yucca Flat area, Nevada Test Site, Geol. Soc. Am. Memoir, #110, E.B. Eckel, Editor, Boulder, Colorado.

Healey, D. L., 1968, Application of gravity data to geological problems at Nevada Test Site; Geol. Soc. Am. Memoir, #110, E. B. Eckel, Editor, Boulder, Colorado.

Ramspott, L. D. and N. W. Howard, 1975, Average properties of nuclear test areas and media at th USERDA Nevada Test Site, Lawrence Livermore Laboratory, -UCRL-51948.

Hays, W. W. and J. R. Murphy, 1971, The effect of Yucca fault on seismic wave propagation; Bull. Seism. Soc. Am., 61, 697-706.

McKeown, F. A. and D. D. Dickey, 1969, Fault displacements and motion related to nuclear explosions; Bull. Seism. Soc. Am., 59, 2253-2271.

Thornbrough, A. D., 1971, Current practices and anticipated improvements in PNE, In "Peaceful Explosions II", by the International Atomic Energy Agency, Vienna.

computed synthetic records comparable without correction for halfspace properties below the layered stock. Pulse sizes of a 50 kt explosion, as modeled by von Seggern and Blandford (1972), were compared after passing them through our layered halfspace models. We also attenuated each pulse with a multiplicative spectral factor exp $(-\pi f t^*)$ where t^* was chosen to be .45, a typical value for the WUS. By removing most of the high frequencies, the attenuation factor makes the pulse more rounded. This pulse has a spectrum which, in spectral content, well represents the average teleseismic P-wave arrivals. It is peaked at 1 cps. and falls off at a rate of somewhat more than ω^{-2} at high frequencies. To reduce variations caused by changes in the angle of incidence, we computed synthetics for three angles (20°, 25°, and 30° measured from the vertical) and then averaged the relative amplification factors between stations obtained for these three angles.

Table III lists the model parameters used in the calculations, and Figures 12 through 18 detail the results of the calculations. All the figures are laid out identically; the model name is at the top, and the angles of incidence are on the left followed by the crustal amplitude responses plotted as functions of frequency. In the center are the impulse responses of the crustal model, and at the right are the synthetic seismograms plotted on the given time scale. All plots are normalized to unity in maximum, and the numerical value of the normalization factor is indicated on the right of each plot. The values of crustal amplification are summarized in Table IV.

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von Seggern, D. H. and R. R. Blandford, 1972, Source time functions and spectra for underground nuclear explosions; Geophys. J. R. Astr. Soc., 31, 83-97.

TABLE III

Crustal models used in the computation of correction factors by the Haskell matrix method.

GBNM

d	α	β	δ
.700	2.00	1.06	2.00
.150	3.25	1.63	2.00
.200	3.45	1.73	2.00
.120	3.90	2.16	2.28
.600	4.40	2.48	2.49
.625	4.80	2.73	2.55
∞	5.70	3.29	2.70

FANV (McKeown and Dickey, 1969)

d	α	β	δ
0.44	2.5	1.06	2.3
1.00	3.0	1.60	2.3
1.00	3.5	1.73	2.3
1.525	4.0	2.20	2.7

Yucca Flats (Hays & Murphy, 1971)

d YFNV	d YF2NV	d YF3NV	d YF4NV	α	β	δ
.18	.24	.29	.29	1.3	.659	1.75
.55	.58	.61	.70	2.0	1.07	1.196
∞	∞	∞	∞	5.7	3.36	2.7

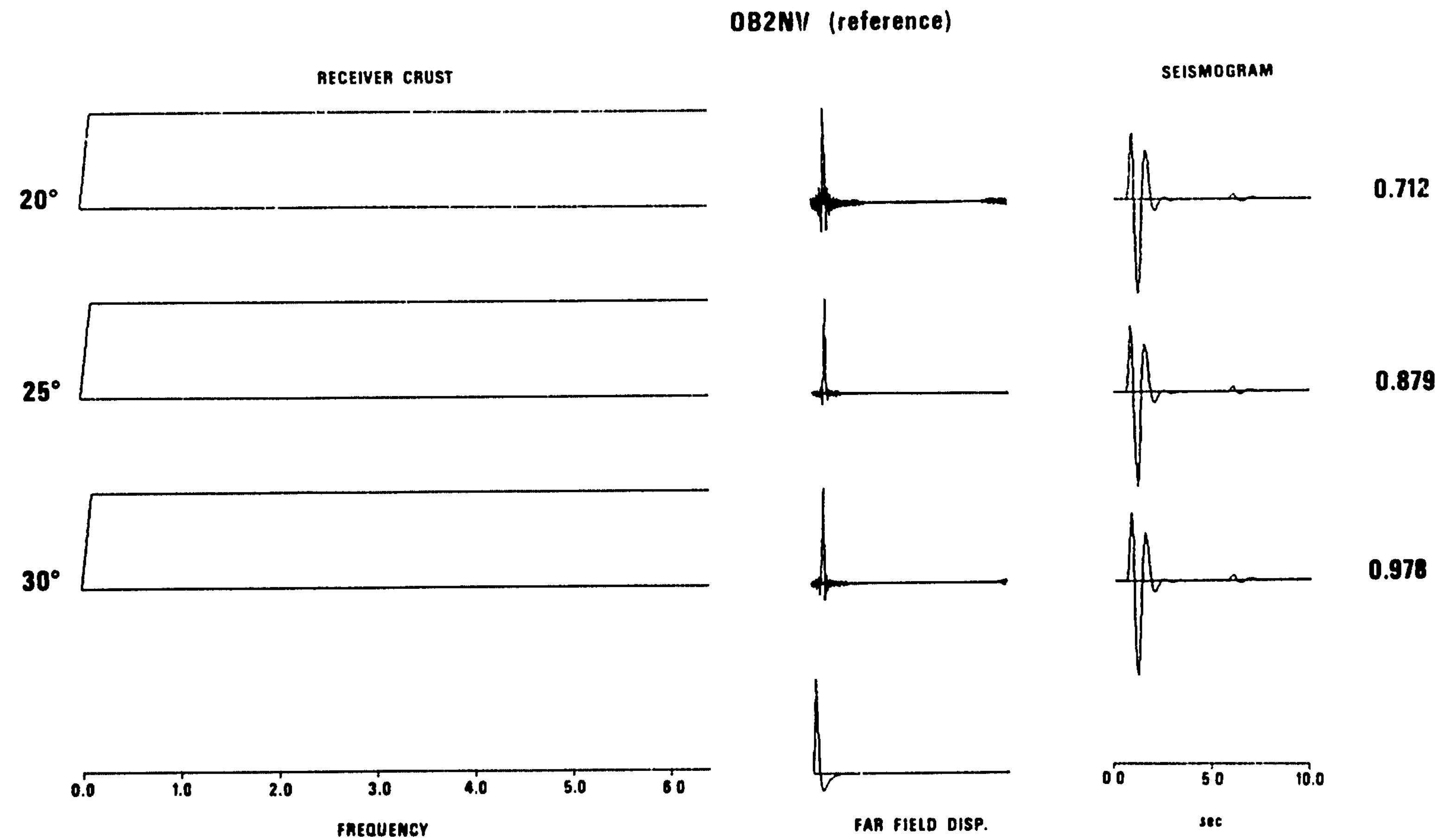

Figure 12. Crustal response calculations for the stations on granite (RKON, OB2NV, SEMN, OB3NV).

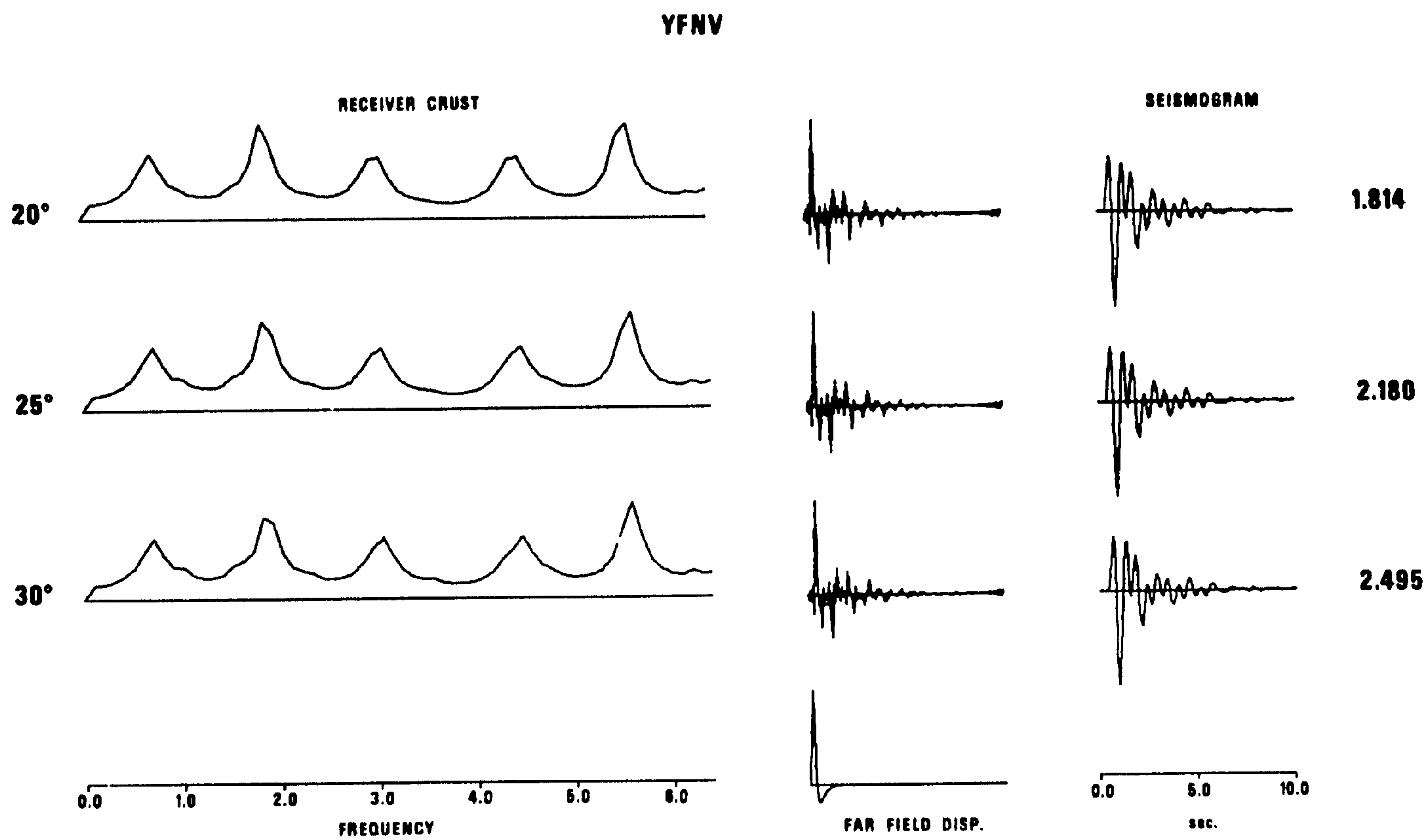

Figure 13. Crustal response calculations for station YFNV.

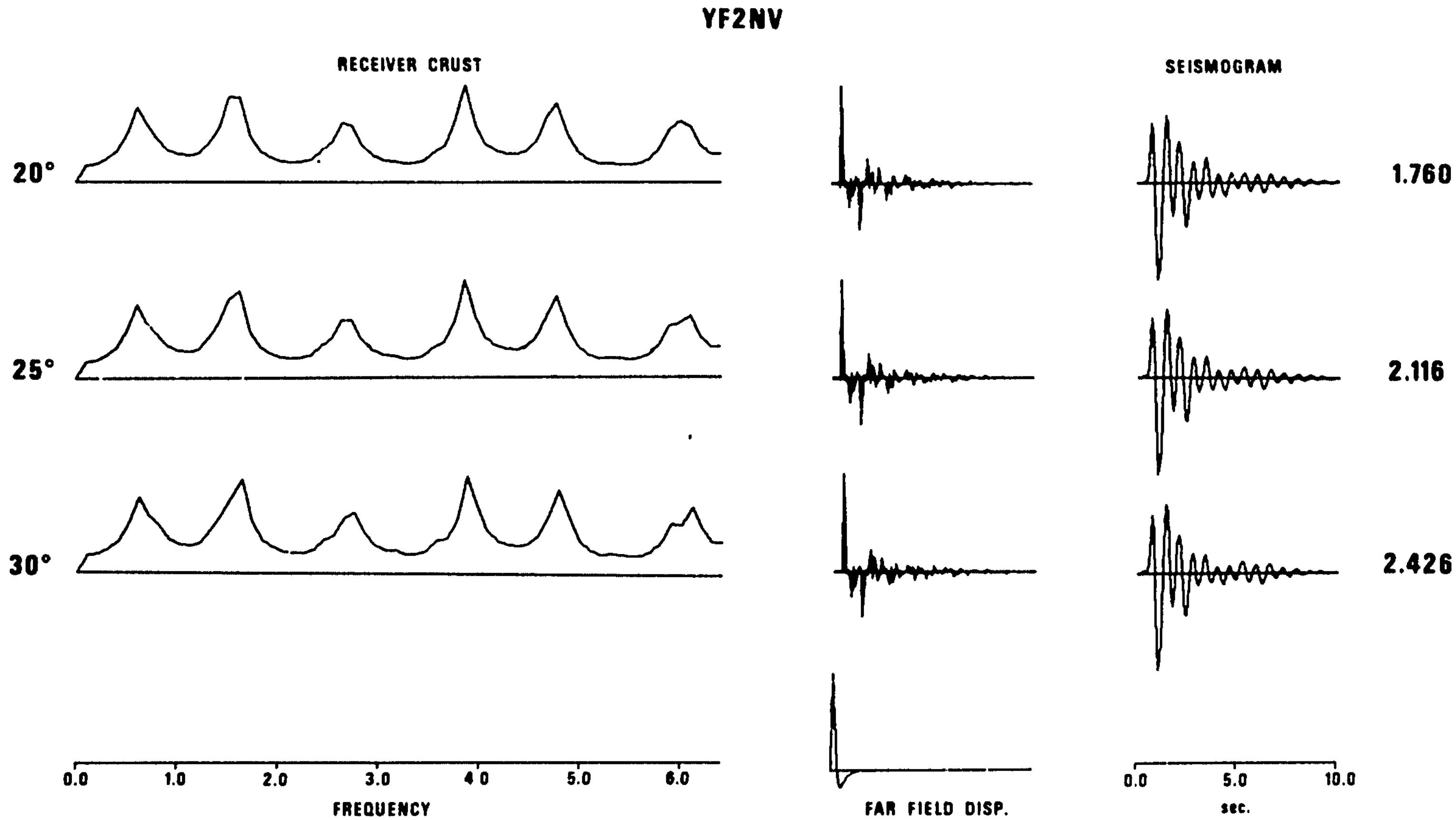

Figure 14. Crustal response calculations for station YF2NV.

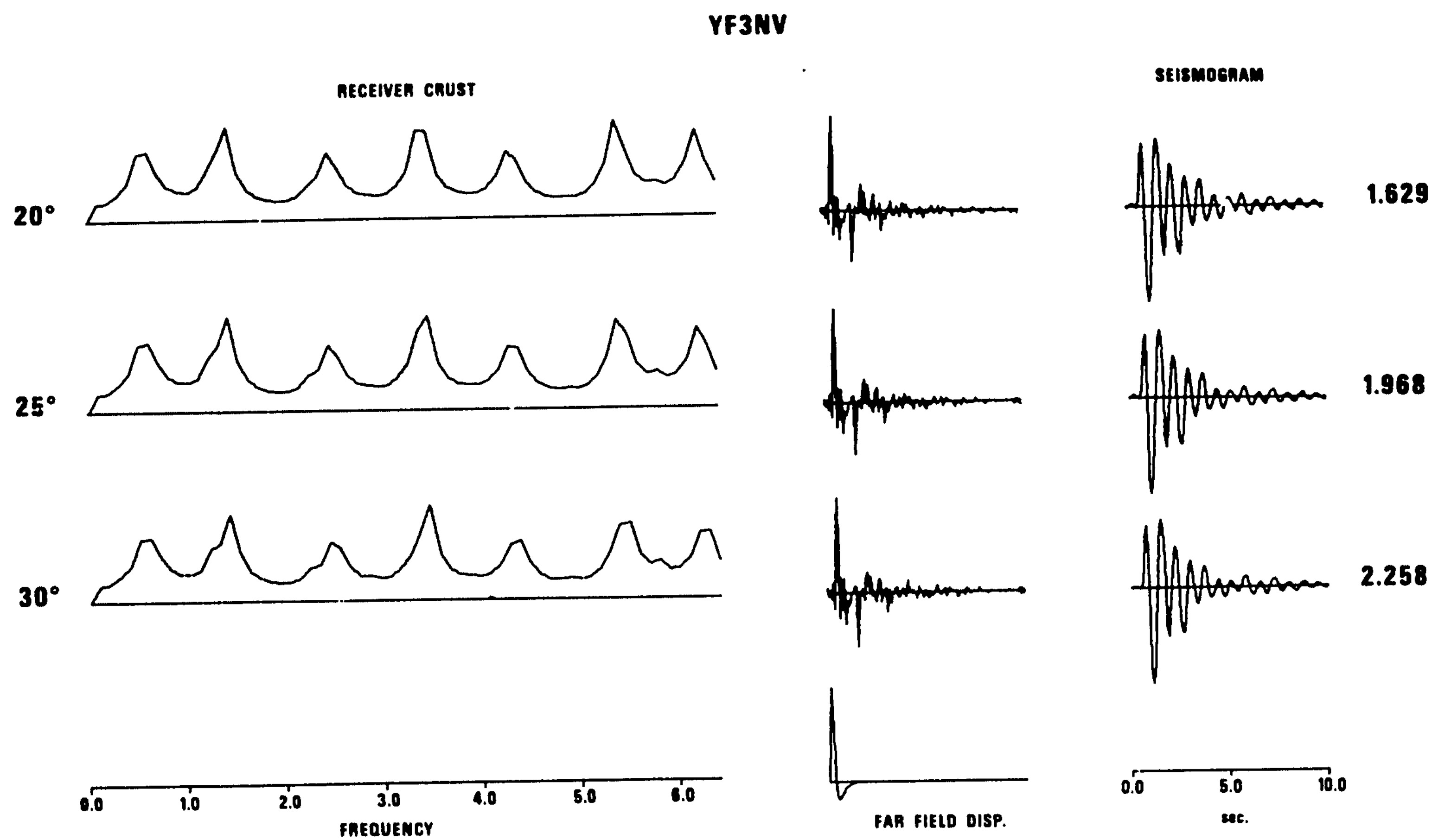

Figure 15. Crustal response calculations for station YF3NV.

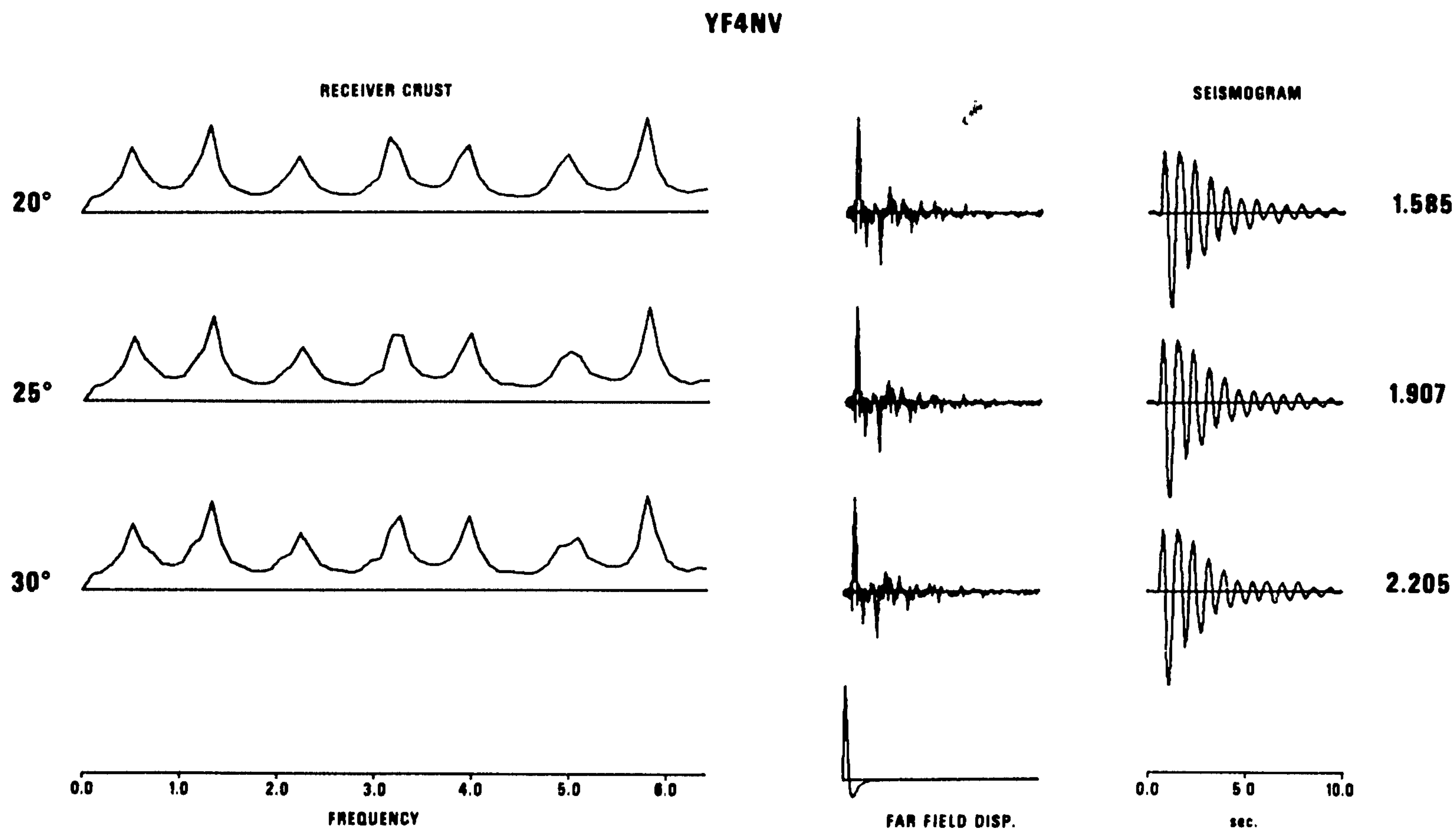

Figure 16. Crustal response calculations for station YF4NV.

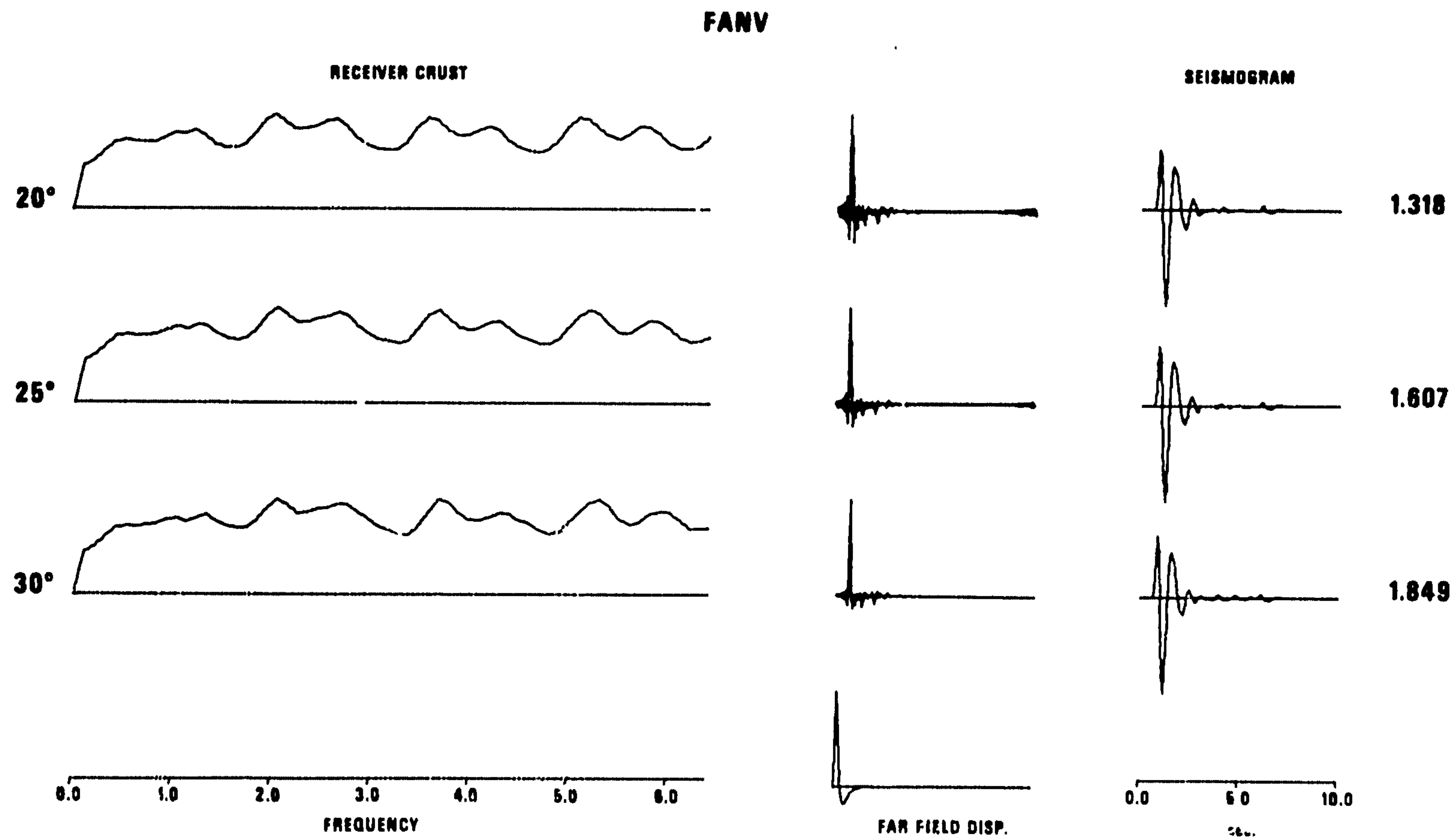

Figure 17. Crustal response calculations for station FANV.

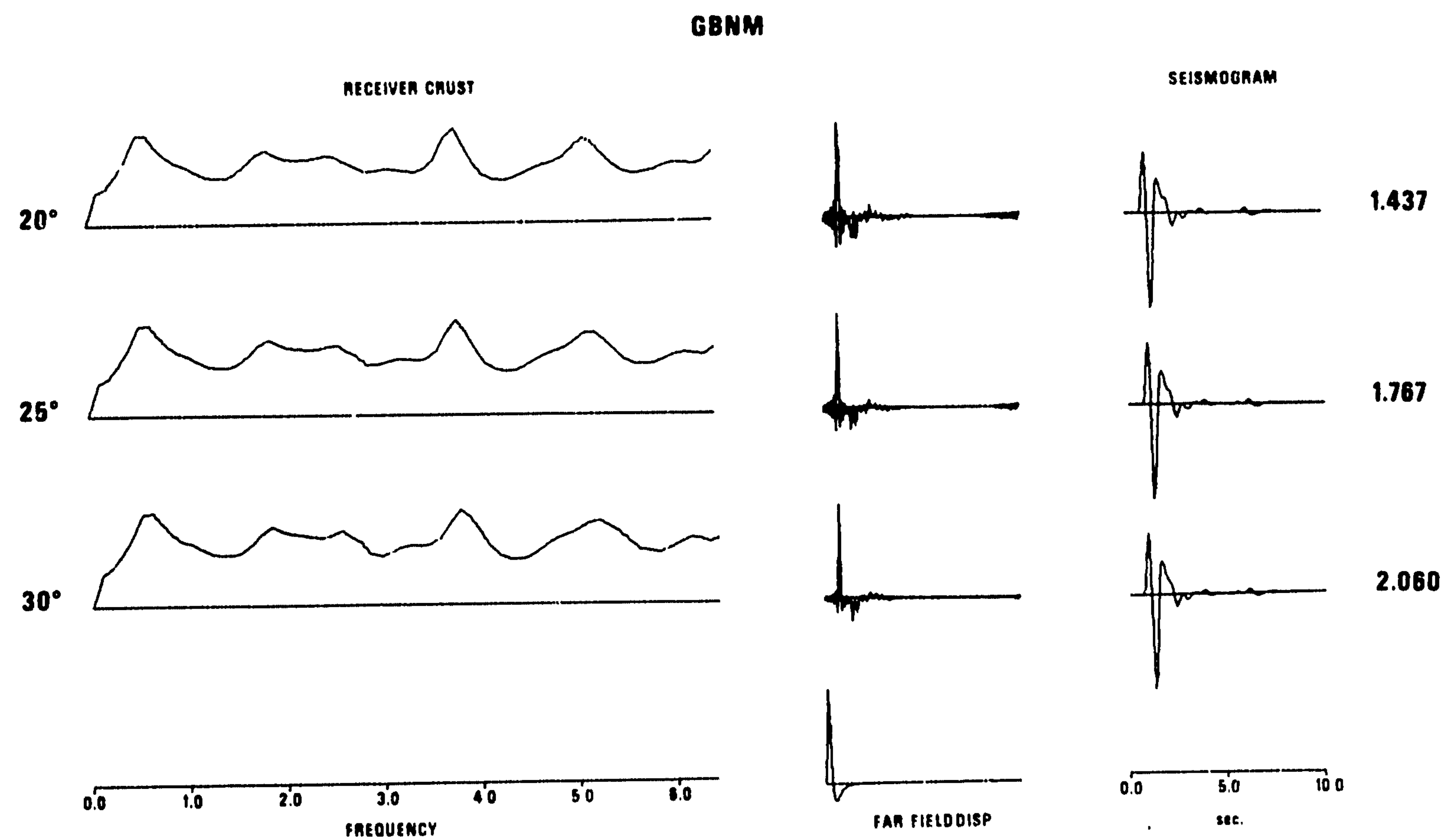

Figure 18. Crustal response calculations for station CBNM.

In addition to calculating crustal response using Haskell's matrix method for horizontally layered media, a finite difference method for inhomogeneous media was also used to estimate crustal amplification at the four stations on Yucca Flats (the method is described in the paper by Kelly et al., 1976). We attempted to model Yucca Flats with a structure derived from Hays and Murphy (1971), utilizing Ramspott's and Howard's (1975) and Fernald et al.'s velocity and structural data.

Figures 20a-d together show the vertical displacement wavefield at various times caused by a single cycle P wave incident on the Yucca Flats model. (The method for making this wavefield is outlined in Figure 19.) Assume that an incident wave with displacement amplitude A, plus signs, denotes upward displacement with amplitude $|A| > .3$; and that minus signs denote downward displacement with similar amplitude. The incident wave has a frequency of 1 Hz. The figure also indicates geological units, somewhat oversimplified, and the location of Yucca fault and the four stations at Yucca Flats. To increase computational stability, transition zones were inserted between the various geological formations. The "snapshots" of vertical displacement wave fields in Figures 20a, b, and c show, in successive order, the slowing down of the wavefront by the basin (20a) and the development of the in-phase reflection from the surface (20b and c). Figure 20d shows the synthetic wavetrains at five stations, four at Yucca Flats and the fifth at an imaginary reference station on Paleozoic at the side of the valley. The figure shows that the time delay at all Yucca stations is the greatest at YF4NV where the sediments and volcanics are the thickest. The amplification of the waves at Yucca Flats is also evident relative to the reference station. Since we needed to compare Yucca Flats to OB2NV, a station on granite, we used a <u>granite halfspace</u> for a reference model in computing the amplification at Yucca Flats, instead of the reference station in Figures 20a-d. The base 10 logarithms of the amplitude ratios were used for the crustal magnitude corrections; they are summarized in Table IV.

Kelly, E. R., R. W. Ward, S. Treitel and R. M. Alford, 1976, Synthetic seismograms, a finite difference approach; <u>Geophysics, 41</u>, 2-27.

TABLE IV

Summary of crustal amplification results.

Stations	Magnitude differential relative to OB2NV		
	Finite Difference 1Hz	layered (Haskell)	Δm_b observed
YF	.26	.34	.306
YF2	.32	.34	.370
YF3	.27	.32	.434
YF4	.30	.32	.413

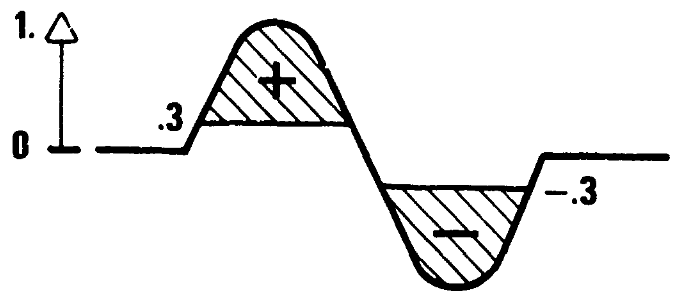

Figure 19. Explanation of the method used in Figure 20.

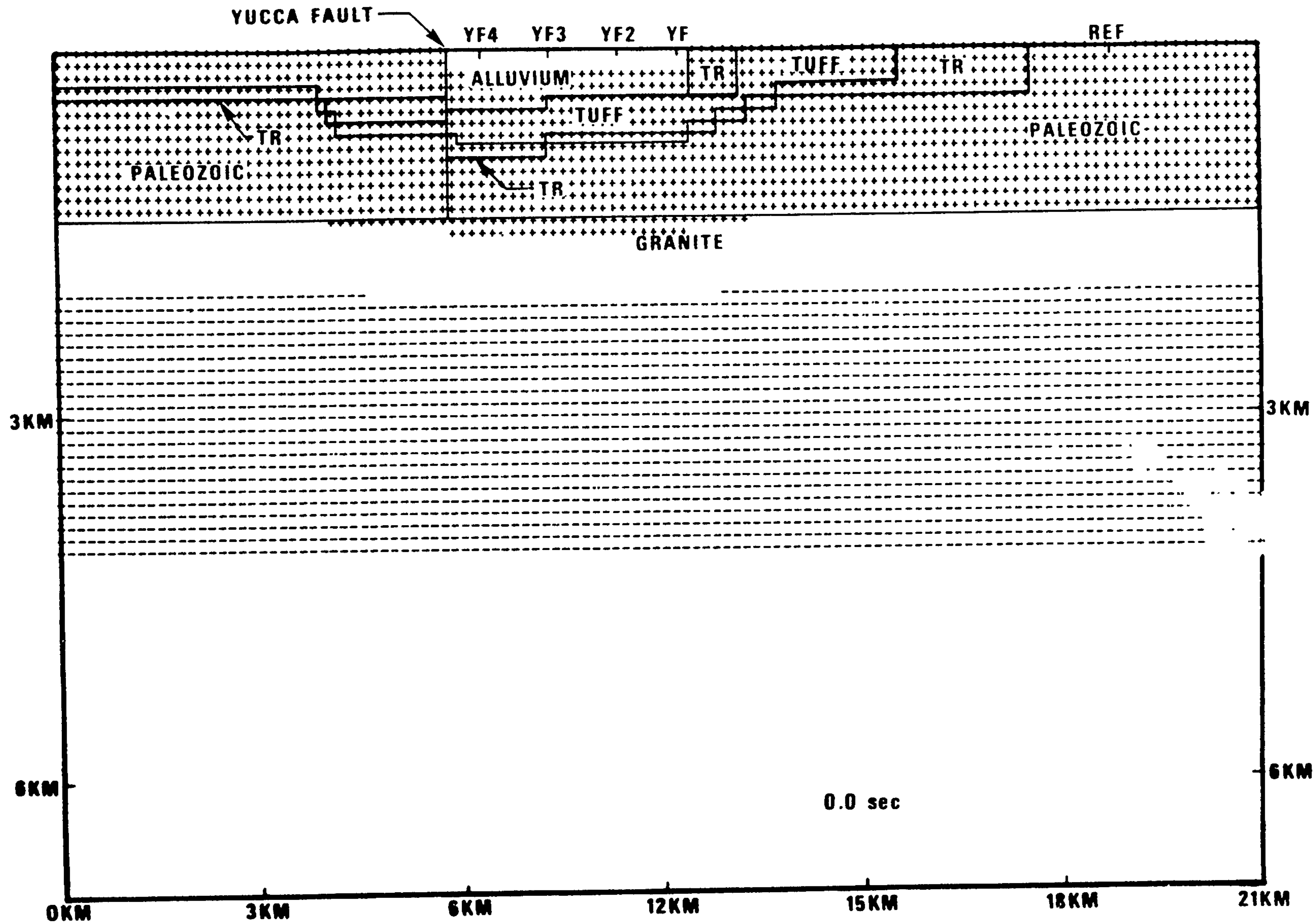

Figure 20a. Finite difference calculations for Yucca Flats.

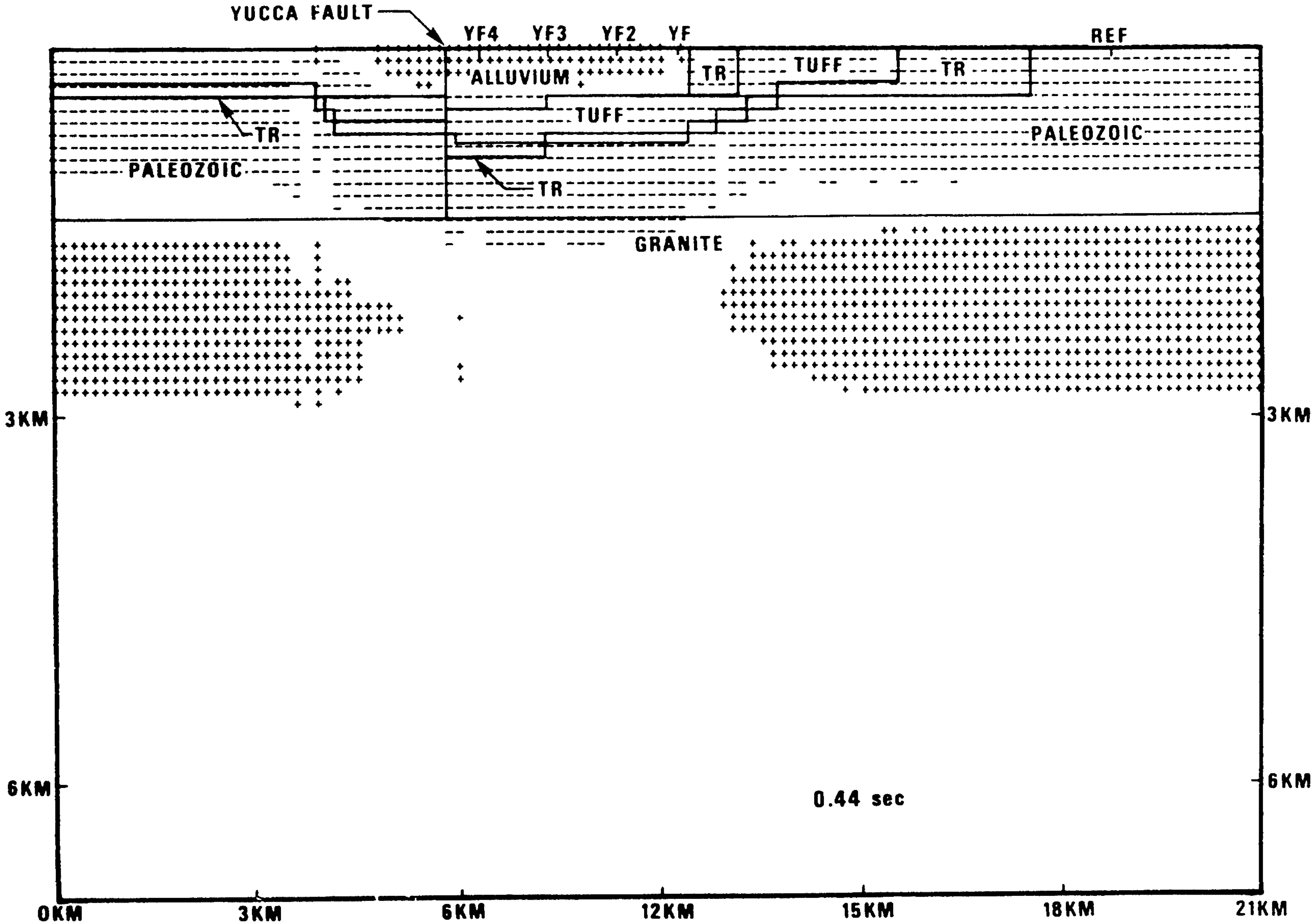

Figure 20b. Finite difference calculations for Yucca Flats.

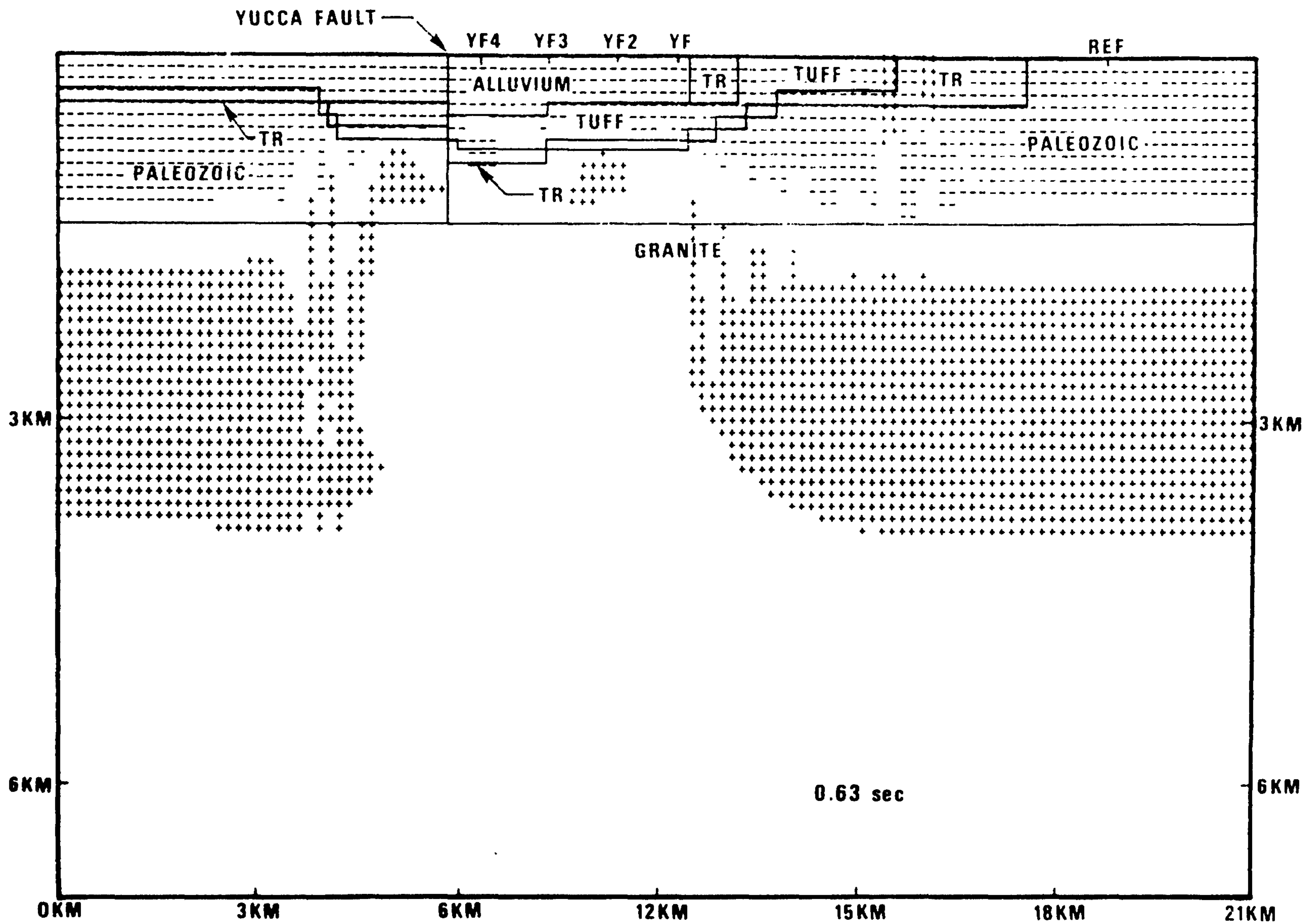

Figure 20c. Finite difference calculations for Yucca Flats.

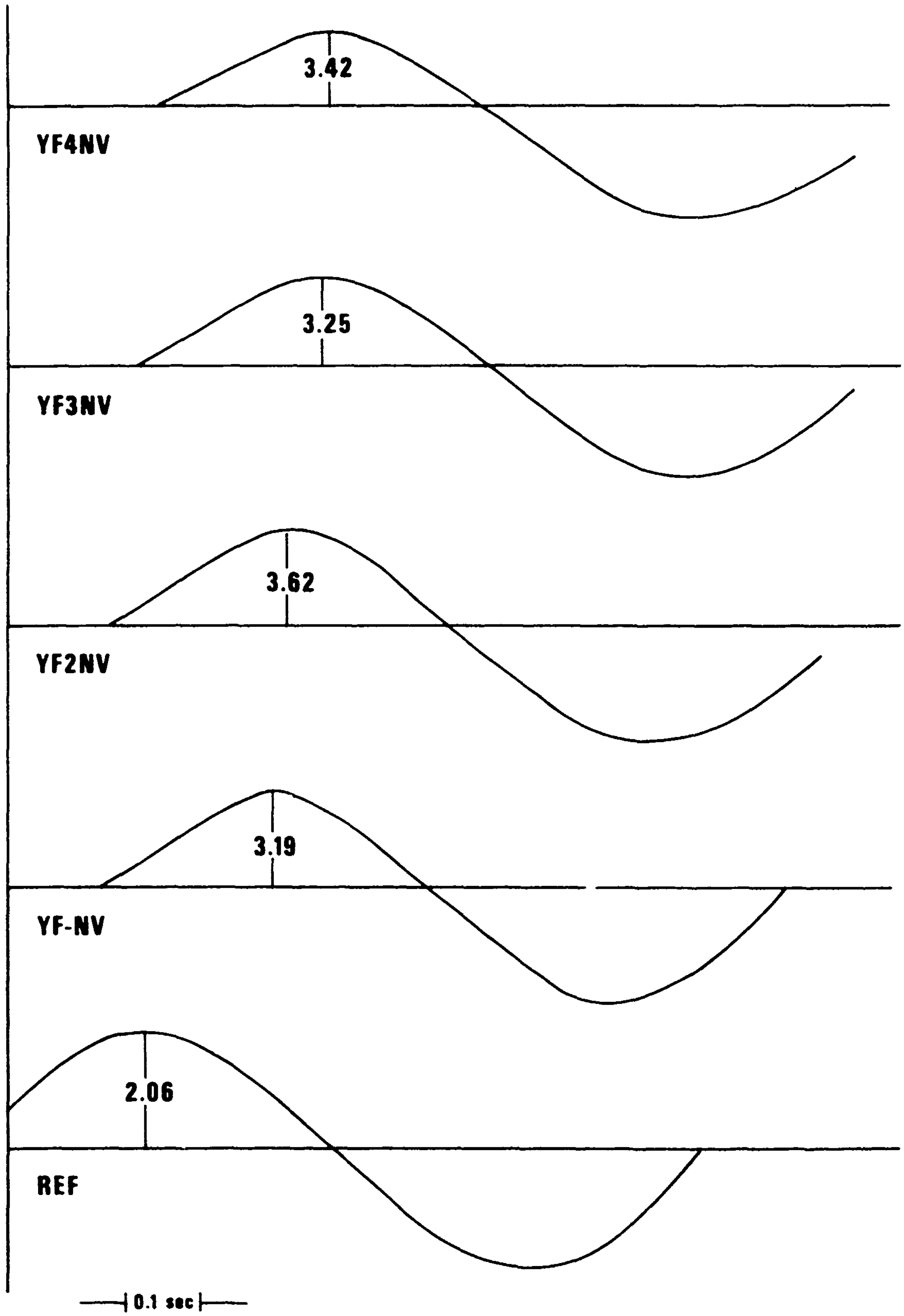

Figure 20d. Finite difference calculations for Yucca Flats.

Both the Haskell matrix and the finite difference methods suggest considerable amplification at Yucca Flat, and the two methods yield similar estimates. Note the reverberations of the waveforms at Yucca Flats in the synthetics computed by the Haskell method. The lengthening of the P wavetrains due to reverberations can also be seen by inspecting the recorded actual waveforms.

SPECTRAL ANALYSIS

Relative t* values for the SDCS stations have been computed. Because computing spectral ratios for all possible pairs of stations is redundant, we computed ratios only for those station pairs directly connected by lines in Figure 21. Differentials in t* (Δt^*) obtained from spectral ratios and their standard deviation for other station pairs can be easily derived from these figures. This approach takes advantage of the fact that, for closely located station pairs, $\sigma_{\Delta t^*}$ has smaller variance than for distant pairs of stations. For example, determining Δt^* for the RKON-OB2NV and OB2NV-YFNV pairs is more reliable than determining Δt^* directly from the fewer events common to RKON and YFNV alone. This statement is true because many events for the RKON-OB2NV pair were available during the project's two phases to reduce the variance of their mean Δt^*, while few events were sufficient to define Δt^* for the OB2NV-YFNV pair. The histograms of the measured Δt^* are given in Appendix C. In addition to those involving the new stations of Phase II, updated versions of histograms for the OB2NV-RKON and HNME-RKON pairs are presented. In all cases, an accuracy ($2\sigma_{\Delta t^*}$) of $\sim$ .05 sec was the goal.

The easiest way to discuss Δt^* is to compare them to a common standard station. Some of these Δt^* mean values and their standard deviations were derived indirectly. The summary figure (Figure 4) uses OB2NV as a standard station. The figure shows that all WUS stations have essentially the same t* as OB2NV with the exception of stations NTNV and NT2NV, which have significantly lower t* than OB2NV. The OB3NV-OB2NV differential is also significant statistically but the difference in t* so small that it is of no importance in this study. The averages of the differential in dominant period (ΔT) show variations similar to Δt^*, indicating that variations in frequency content are visible on the time domain traces. The RKON-OB2NV differential in t* is about .2 sec and highly significant statistically. The HNME-OB2NV differential is less (.08 sec), but it is also significant at the 95% confidence level. This lower value may indicate some

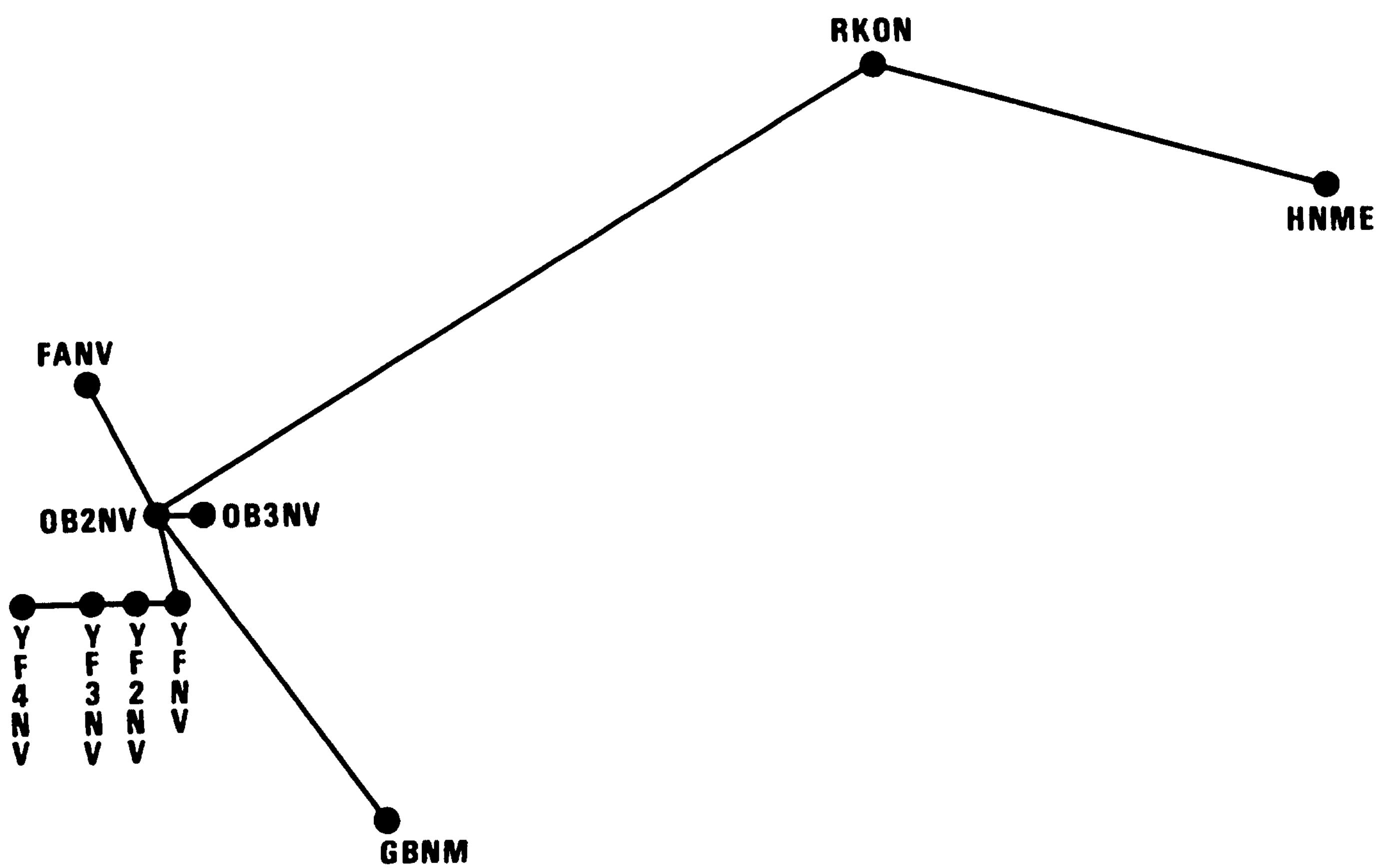

Figure 21. Station pairs selected for spectral ratio computation.

attenuation under the Northeastern U. S.; a possibility suggested in Solomon's and Toksöz's (1970) work and Der et al.'s work (1975).

The Yucca Flat stations had some difficulty in reliably determining t*. This difficulty resulted from high, unstationary man-made noise (drilling) at these sites that made the standard procedure for estimating noise in the signal window (taking spectra of time windows prior to the arrival of the P wave) fail repeatedly. Many of the spectral ratios supposedly show points with high S/N (around 4 Hz) that disagree with the trend at lower frequencies. This can be attributed to nonstationary noise rather than to real signal energy at 4 Hz, which should be far beyond the corner frequency expected for most events. Crustal response calculations rule out major enhancements of high frequency energy. (Thus, the reader should assign less weight to the t* determination at YF stations).

The standard deviation of relative t* values depends upon mutual distance between stations similar to that shown by the magnitude residuals. Table V includes a tabulation of $\sigma_{\Delta t^*}$ versus $\Delta°$ as shown in Figure 22. Note that the numerical values of $\sigma_{\Delta t^*}$ are smaller and increase more slowly with distance than $\sigma_{\Delta m_b}$. Because absolute numerical values of Δm_b and Δt^* are both of the order of a few tenths in magnitude units and seconds, respectively, fewer measurements are needed to establish Δt^* between stations than to determine magnitude residuals with the same numerical accuracy in the respective units used in this report. This result is in agreement with experience at seismic arrays and shows that Δt^* is numerically a more stable quantity than Δm_b in terms of multipathing and other disturbances (Der et al., 1977b).

Solomon, S. C. and M. N. Toksöz, 1970, Lateral variations of attenuation of P and S waves beneath the United States; Bull. Seism. Soc. Am., 60, 819-838.

Der, Z. A., R. P. Masse and J. P. Gurski, 1975, Regional attenuation of short-period P and S waves in the United States; Geophys. J. R. Astr. Soc., 40, 84-106.

Der, Z. A., M. S. Dawkins, T. W. McElfresh, J. H. Goncz, E. G. LaPella, and M. D. Gillispie, 1977b, Teleseismic P wave amplitudes and spectra at NTS and selected Basin and Range sites as compared to those observed in eastern North America, NTS experiment - Phase I, Final Report, SDAC-TR-77-7, Teledyne Geotech, Alexandria, Virginia.

TABLE V

Standard deviation of Δt^* versus interstation distance.

Station Pair	Δ^o	$\sigma_{\Delta t^*}$	N
GB - OB2	7.09	.232	25
FA - OB2	1.41	.139	27
YF4 - YF	.0318	.098	29
YF4 - YF2	.024	.066	25
YF4 - YF3	.0158	.078	26
YF3 - YF	.0158	.091	26
YF3 - YF2	.00768	.093	22
YF2 - YF	.00768	.069	36
YF - OB2	.17	.155	39
OB3 - OB2	.00789	.065	46
OB2 - RK	20.97	.149	75
RK - HN	17.61	.140	24
NT2 - NT	.100	.125	27
NT2 - OB2	.192	.156	38
NT2 - RK	21.03	.212	43

$$\sigma_{\Delta t^*} = 0.147 + .032 \log_{10}\Delta^o$$

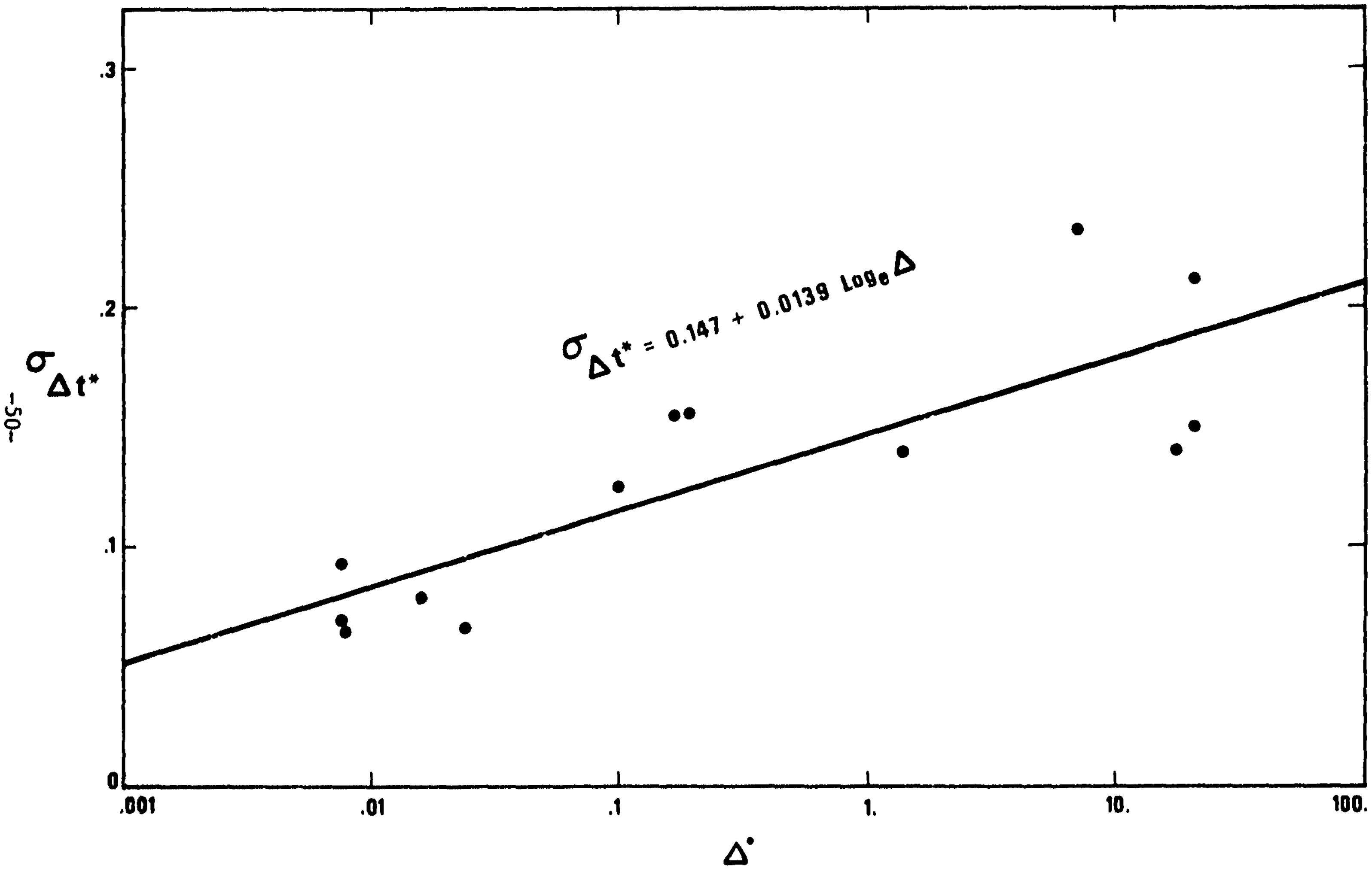

Figure 22. Standard deviation of the t* differentials as a function of interstation distance.

Joint Consideration of Δm_b, $\Delta m'_a$, Δt^* and the Crustal Corrections

The bottom of Figure 4 shows the Δm_b^{corr} magnitude residuals relative to OB2NV, corrected for estimated crustal response; the stations on granite or hard metamorphic rock are left uncorrected (HN, RK, SE, SZ, OB3). Stations were corrected on the thick tuff sequence of Pahute Mesa (NT, NT2), the alluvium and tuff of Yucca valley (YF, YF2, YF3, YF4) and sediments of other kinds (FA, and GB). Ideally, a negative correlation should exist between Δm_b^{corr} and t*, if t* and the crustal corrections are the sole factors determining m_b. However, this correlation does not hold because, while estimated crustal corrections reduce most NTS stations to roughly the same magnitude level (with the exception of YF3NV and YF4NV), FANV and GBNM when corrected fall below the NTS level. Near surface information is quite reliable at the FANV site, where several boreholes have been logged for velocity, but the accuracy of GBNM corrections is questionable. Still, available information suggests that reducing the FANV and GBNM points below the m_b level of NTS appears unavoidable.

Apparently, then, the consistency between the set of values of Δm_b, $\Delta m'_a$, Δt^* and the crustal corrections for stations in Phase I was destroyed after adding new data. The consequences of this finding are discussed below.

Interpretation of the Results

The purpose of the NTS experiment is to measure the amount of anelastic attenuation in the short-period band under a selected set of nuclear test sites within the continental United States by measuring spectra and amplitudes of incoming P waves from teleseisms. Regional patterns of magnitude differential measurements for teleseisms have been previously outlined (Guyton, 1966; Evernden and Clark, 1970; Booth, Marshall and Young, 1974; Der, Massé

Evernden, J. and D. M. Clark, 1970, Study of teleseismic P. II amplitude data; Phys. Earth Planet, Interiors; 4, 24-3.

Booth, D. C., P. D. Marshall, and J. B. Young, 1974. Long-and short-period amplitudes from earthquakes in the range 0° - 114°; Geophys. J. R. Astr. Soc.

and Jurski, 1975; North, 1977), and little doubt can exist about the presence of regional differences in m_b measurements. While not a central part of the experiment, we observed regional differences in the frequency content of P waves that appear to correlate with the magnitude residuals (Der and McElfresh, 1977). On an average regional level, the magnitude spectral data and crustal amplification estimates also seemed to correlate (Der, McElfresh and Mrazek, 1977) and a similar regional pattern seemed to exist for short period S waves (Smart, Der and Chaplin, 1978).

While on a regional basis the correlation between Δt^*, Δm_b, and crustal corrections appears statistically significant, determining the degree of anelastic attenuation under a specific location is quite different. Therefore, although critical measurements for estimation of anelastic attenuation at a given site include spectral slopes and body waves amplitudes, exactly which measurement more effectively diagnoses the reciprocal Q effect of the mantle under the given site should be decided by careful evaluation of the reliability of the diagnostics used. Both spectra and amplitudes are subject to effects unrelated to anelastic Q, and we want to base our calculations on the most stable and diagnostic combinations of measured quantities available. Therefore, the choice of estimators for upper mantle Q should be based both on experience and theory.

Guyton, J. W., 1964, Systematic deviations of magnitude from body waves at seismograph stations in the United States, Proc. VESIAC Conf. Seismic Event Magnitude Determination, University of Michigan, 4410-71-X.

North, R. G., 1977, Station magnitude biases-its determination, causes and effect, Lincoln Laboratory, M.I.T. Technical Note 1977-24, 62.

Der, Z. A. and T. W. McElfresh, 1977, The relationship between anelastic attenuation and regional amplitude anomalies of short period P waves in North America; Bull. Seism. Soc. Am., 67, 1303-1317.

Der, Z. A., T. W. McElfresh and C. P. Mrazek, 1977, The effect of crustal structure on the station magnitude anomalies (magnitude bias), SDAC-TR-77-1, Teledyne Geotech, Alexandria, Virginia.

Smart, E., Der, Z. A. and A. H. Chaplin, 1978, Short period S wave attenuation under the United States, SDAC-TR-78-6, Teledyne Geotech, Alexandria, Virginia.

In the absence of other effects, slopes from the ratios of body wave spectra are useful in evaluating anelastic attenuation. The attenuation correction for m_b should be, in the first approximation, proportional to t*

$$\overline{\Delta m_b} \sim t^* \tag{1}$$

Numerical simulations can provide more exact relationships. Inclusion of the effect due to the local crustal amplification factor A_c, leads to a more realistic formula for m_b at a given station

$$\overline{m_b} \approx a + b \log_{10} A_c + ct^* + \varepsilon \tag{2}$$

where a, b, and c are constants. a is a simple additive term, b should ideally be unity if A_c is unbiased, and c could be derived from numerical simulation. Finally, ε is an error term that should be zero, if all other effects of magnitudes are negligible, and if A_c and t* are accurate. If ε is large, $\overline{m_b}$ cannot be used to measure attenuation. Of all quantities in equation (2), t* is most important in terms of determining magnitude bias for explosions at teleseismic recording stations. If known, then this bias determines the reciprocal upper mantle attenuation. The question is whether measuring m_b at individual stations improves the definition of t*.

Experience indicates, however, that amplitude measurements are almost useless in determining t* at an individual station. This is true because of our crude knowledge of crustal structure at most locations. In addition, horizontally homogeneous models used for computing A_c are not realistic, and therefore, A_c may have a large error associated with it.

The teleseismic magnitude residuals (Booth, Marshall and Young, 1974) at selected stations of the LRSM network provide a set of empirical data suitable for determining the coefficients in equation (2). Using available geological information and the LRSM site reports, horizontally layered crustal models were constructed for each site. The crustal amplification was estimated by passing the normalized pulse of a 50 kt explosion through the layered stack and then, with Haskell's (1962) algorithm, computing the surface amplitude. The Δm_b, logarithms of crustal amplification factors, and t*, (.2 for EUS, and .45 for WUS) based on our study of regional differences (Der and McElfresh, 1977), were fitted with the linear model of equation (2). (Details of the analysis were given in a previous report (Der, McElfresh and Mrazek, 1977), so only the major conclusions are repeated here.) Regression analysis of the data shows that both "b" and "c" are statistically significant with the values and 95% confidence limits given as

$$b = 1.03 \pm .43$$

$$c = -1.35 \pm .32$$

The crustal effect for outgoing waves should be considered separately.

Figure 23 shows a plot of the magnitude residuals versus the quantity $\log_{10} A_c$. Although the linear trends of EUS-WUS stations are perceptible, a great amount of scatter remains. The slopes of the line fits are prescribed by the quantity "b" and the distance between the lines is the regional magnitude bias as prescribed by the value of "c". The only flaw in the analysis, the assumption of fixed regional values of t*, does not seriously weaken our argument. We simply show the correlation between the regional magnitude bias and regional t* averages after allowing for <u>approximate corrections for crustal effects</u>. "C's" value and its confidence limits indicate that the numerical value of the reciprocal Δm_b (in magnitude units) cannot be less than Δt^* (in seconds).

Haskell, N. A., 1962, Crustal reflection of plane P and SV waves; <u>Journal Geophys. Res.</u>, <u>67</u>(12), 4751-4767.

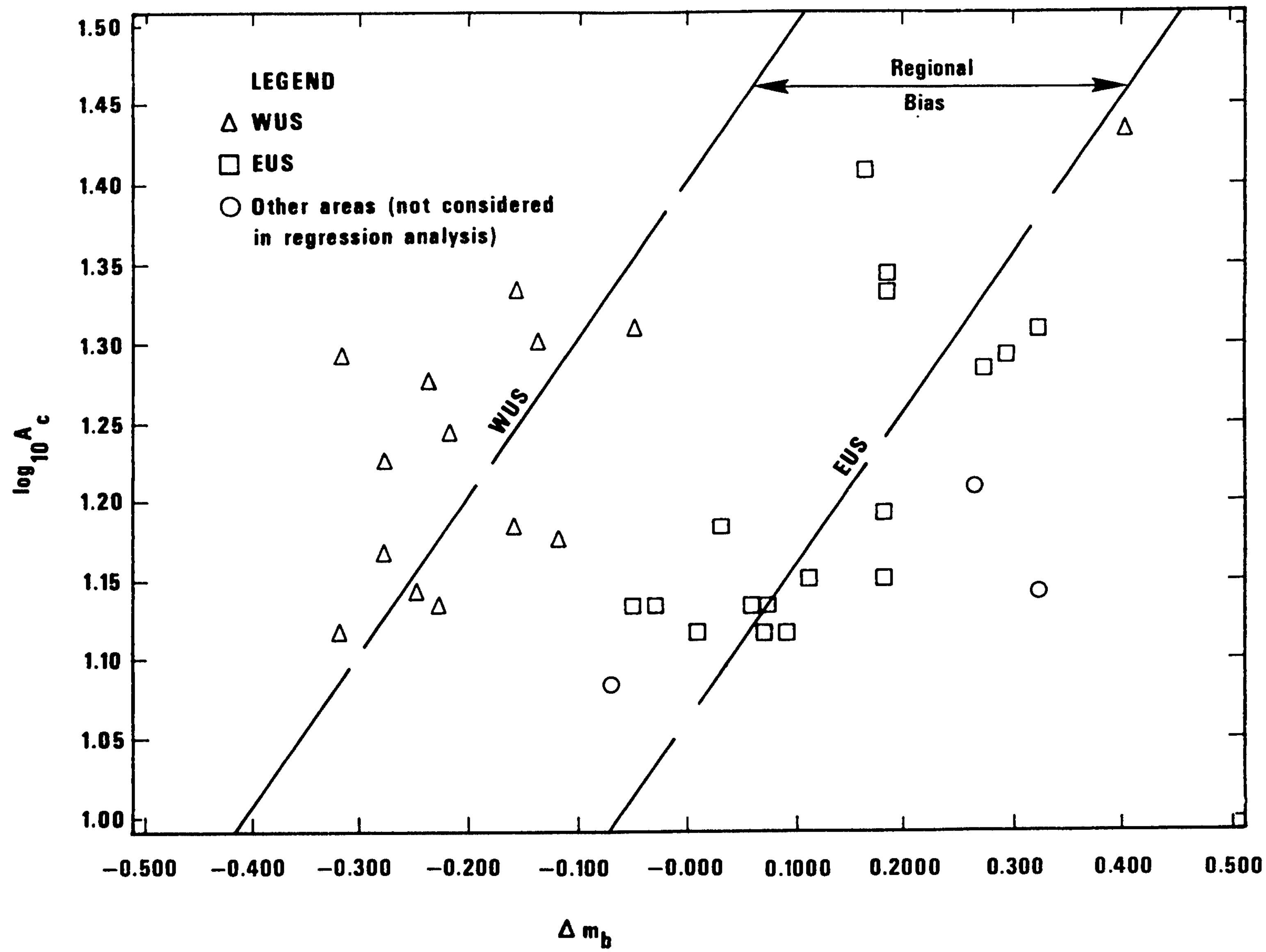

Figure 23. Magnitude residuals of Booth et al. (1974) plotted against estimated crustal correction factors (in magnitude units).

Multipathing and local focusing have a significant impact on seismic wave amplitudes. Also, amplitudes of seismic waves at LASA (Mack, 1969) and NORSAR (Blandford, 1974; Chang and von Seggern, 1977) exhibit large systematic distance and azimuth dependent variations that can amount to a full order of magnitude, a figure that is probably true for almost any location on earth. At LASA these anomalies tend to cancel out if the data are evenly weighted in the azimuth-distance sense (Chang and von Seggern, 1977), but this cannot be assumed in general. Such amplitude variations may stem from multipathing and ray focusing and they cannot be predicted at individual sites without detailed structural knowledge and concomitant analysis such as 3-dimensional ray tracing.

On the other hand, direct t^* from slopes of spectral ratios appears to be considerably more consistent. Calculations of the crustal effect over a large variety of crustal structures on t^* show scalloping of the spectra. If slopes are taken over a sufficiently wide frequency range, the t^* measurement is not affected by most crustal structures because the overall slope of the spectrum does not change. However, individual structures could still change the slope somewhat.

Studies of slopes in spectral ratios over many sensors at NORSAR (Der et al., 1977b) showed that while amplitudes of P waves varied by a factor of five giving a σ_{m_b} of several tenths, the corresponding standard deviation of Δt^* was only .06 across the array. Thus, on the basis of relative accuracy alone, Δt^* is a considerably more stable quantity than Δm_b. Plots of the standard deviations for single Δm_b and Δt^* measurements as functions of mutual distance between station pairs further emphasize this point (Figures 3 and 22). While the standard deviation of Δm_b increases by a factor of 4.5 over the distance range the stations covered, the corresponding increase in the standard deviation of Δt^* is by only a factor of 2.25. Also, t^* starts at lower numerical values.

Mack, H., 1969, Nature of short-period P-wave signal variations at LASA; J. Geophys. Res., 74, 3161-3170.

Blandford, R., 1974, Short period signal-to-noise ratio at NORSAR; SDAC-TR-74-13, Teledyne Geotech, Alexandria, Virginia.

Chang, A. C. and D. H. von Seggern, 1977, Study of amplitude anomaly and m_b bias at LASA subarrays; SDAC-TR-77-11, Teledyne Geotech, Alexandria, Virginia.

That "b" is significantly different from zero and close to unity indicates that the crustal corrections are realistic and that log A_c is a good overall estimator of the crustal effect. The remaining scatter (σ_{m_b} ~ .1 magnitude units) stems from: 1) uncertainties and possible biases of Δm_b due to multipathing, focusing the errors in admittedly rough crustal corrections, and 2) the likely deviation of the individual station t* from the assumed regional values. Still, the terms associated with $\log_{10}A_c$ and t* together account for about 74% of the total variance of Δm_b which, considering the inconsistencies of short period data, is a reasonably good result. The t* differential accounts for 53% of the total variance; the crustal effect for only 10%. Note that the EUS and WUS populations are almost completely separated in the Δm_b - log A_c plane. The only overlapping point is MOID, a station located in a silo sunk into unconsolidated silt.

The most critical parameters in crustal response calculations are the elastic constants and the density at the surface. Figure 24 shows a plot of $\log_{10}A_c$ versus the quantity $(1/2)\log_{10}(\rho_s\alpha_s^3)$, called the surface impedence term (ρ_s and α_s are the density and compressional velocity at the free surface). The correlation is quite good, suggesting that $(1/2)\log_{10}(\rho_s\alpha_s^3)$ could be used instead of $\log_{10}A_c$. Figure 25 shows a plot of $(1/2)\log_{10}(\rho_s\alpha_s^3)$ versus Δm_b, which again shows the separation of the EUS and WUS populations, while the distance between the two straight line fits indicates about the same regional magnitude bias. In this case the t* coefficient was -1.33.

The data set of Booth et al. (1974), without individual t* for each station, cannot measure the noise term ε in equation (2). However, it establishes jointly with our $\log_{10}A_c$ term that crustal effects are significant and that the EUS-WUS bias is not an artifact caused by crustal effects. The values of the coefficients "b" and "c" are consistent, on theoretical grounds, with the expectations.

The pulse from a 50 kt explosion has teleseismic P waves similar in frequency content to teleseismic P waves from earthquakes: hence, b ~ 1. The Value of c = -1.33 can also be justified by synthetic seismogram simulations. Synthetic seismograms were computed for nuclear explosions of various yields in granite and then passed through causal constant-Q filters with various t*.

The results are shown in Figure 26. A line with slope -1.35 is also drawn for comparison. The slopes derived from the synthetics seem to be roughly equal to or greater than -1.35, depending upon the absolute t^*. Another explanation for this result is that the empirical formula is derived from earthquake measurements while explosions have more high frequencies in their spectra.

Another argument can be made for a single frequency component. The exponent in the attenuation law exp $(-ft^*)$ leads to a formula

$$\overline{\Delta m_b} \sim \frac{-\pi f \Delta t^*}{\ln 10} \tag{3}$$

which yields

$$\overline{\Delta m_b} = -1.36 \; \Delta t^* \qquad \text{for } f = 1$$

and

$$\Delta m_b = -\ 1.96 \; \Delta t^* \qquad \text{for } f = 1.42$$

($f = 1.42$ is the average frequency of P waves at RKON). These values can be substantiated with spectral measurements. However, in the actual time domain magnitude calculation, correction for instrument response reduces the Δm_b. This occurs because the dominant period is also changed by attenuation, and the instrument response changes rapidly as a function of period between 0.7 and 0.9 sec, which are typical P-wave periods at RKON and NTS, respectively. This effect is discussed in detail in the preliminary report of Phase I of the NTS experiment (Der et al., 1977).

The NTS experiment produced a set of Δt^*, Δm_b and $\log_{10} A_c$ values that are useful in testing the consistency of equation (2), the rms magnitude of the term ε. The rms value of ε based on the stations of the NTS experiment is quite large ($\sigma > .1$ m.u.), an observation based upon the inconsistency (non-parallelism) of corrected Δm_b and Δt^* plots in Figure 4. The numerical values of the quantities plotted in Figure 4 are also summarized in Table II. Figure 27 is identical to Figure 25, except that data from the NTS experiment have been superimposed on it. We used RKON as a reference point to bring the two data sets together. The figure shows that while FANV, GBNM,

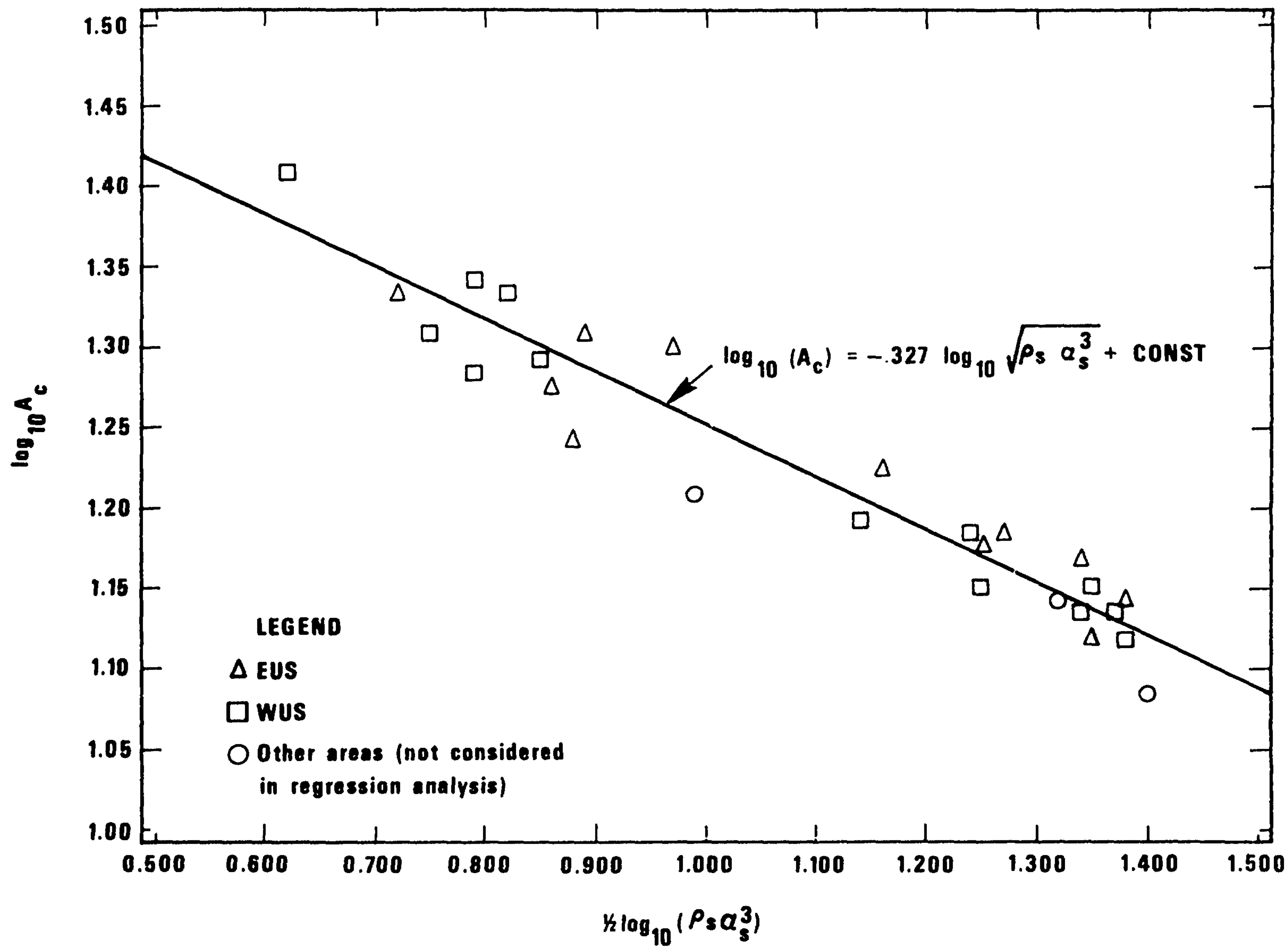

Figure 24. Surface impedance $(1/2)\log_{10}(\rho_s\alpha^3)$ versus magnitude correction $\log_{10}A_c$ derived by Haskell's matrix method

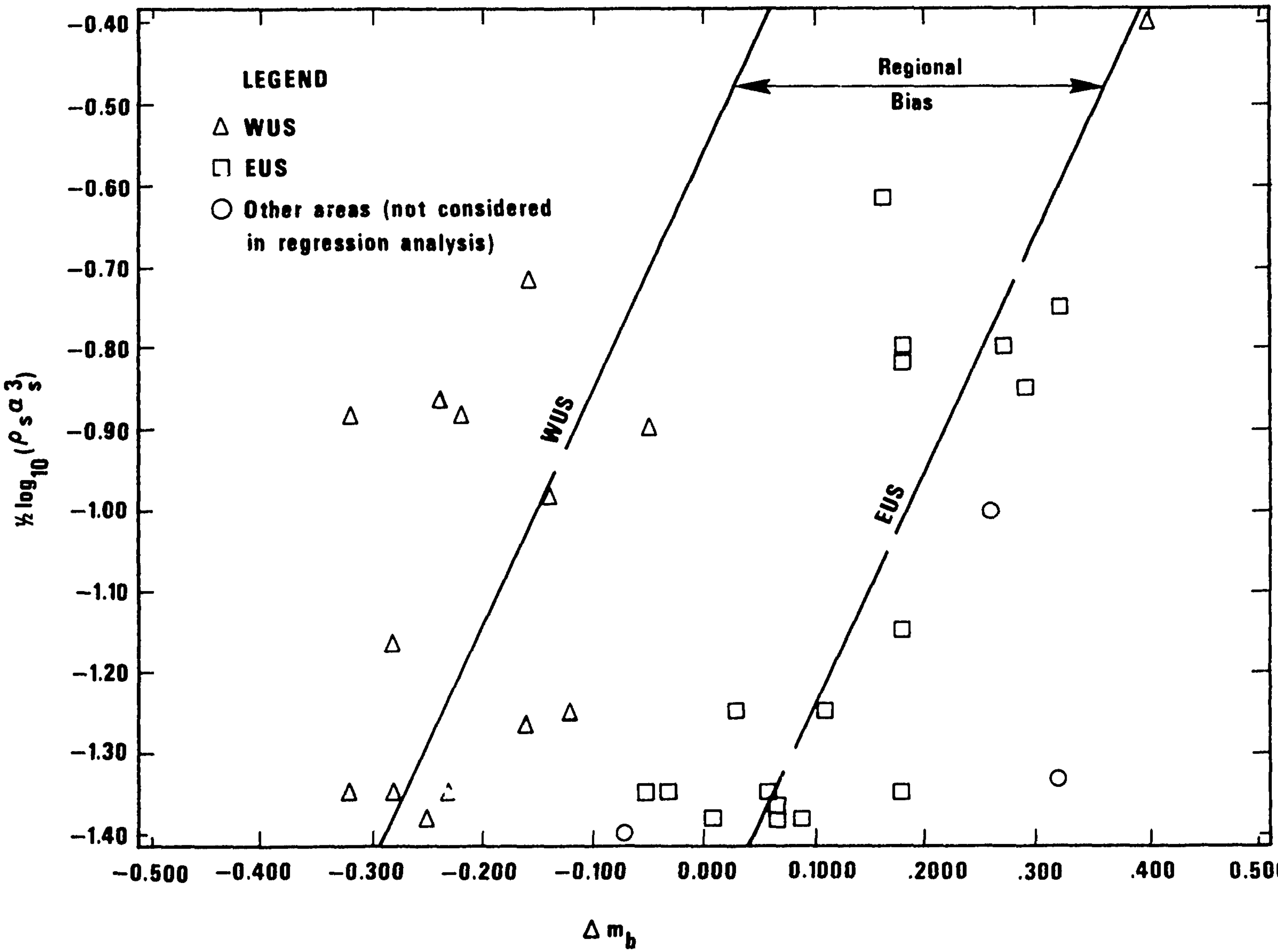

Figure 25. Magnitude residuals of Booth et al. (1974) versus surface impedance $(1/2)\log_{10}(\rho_s \alpha_s^3)$.

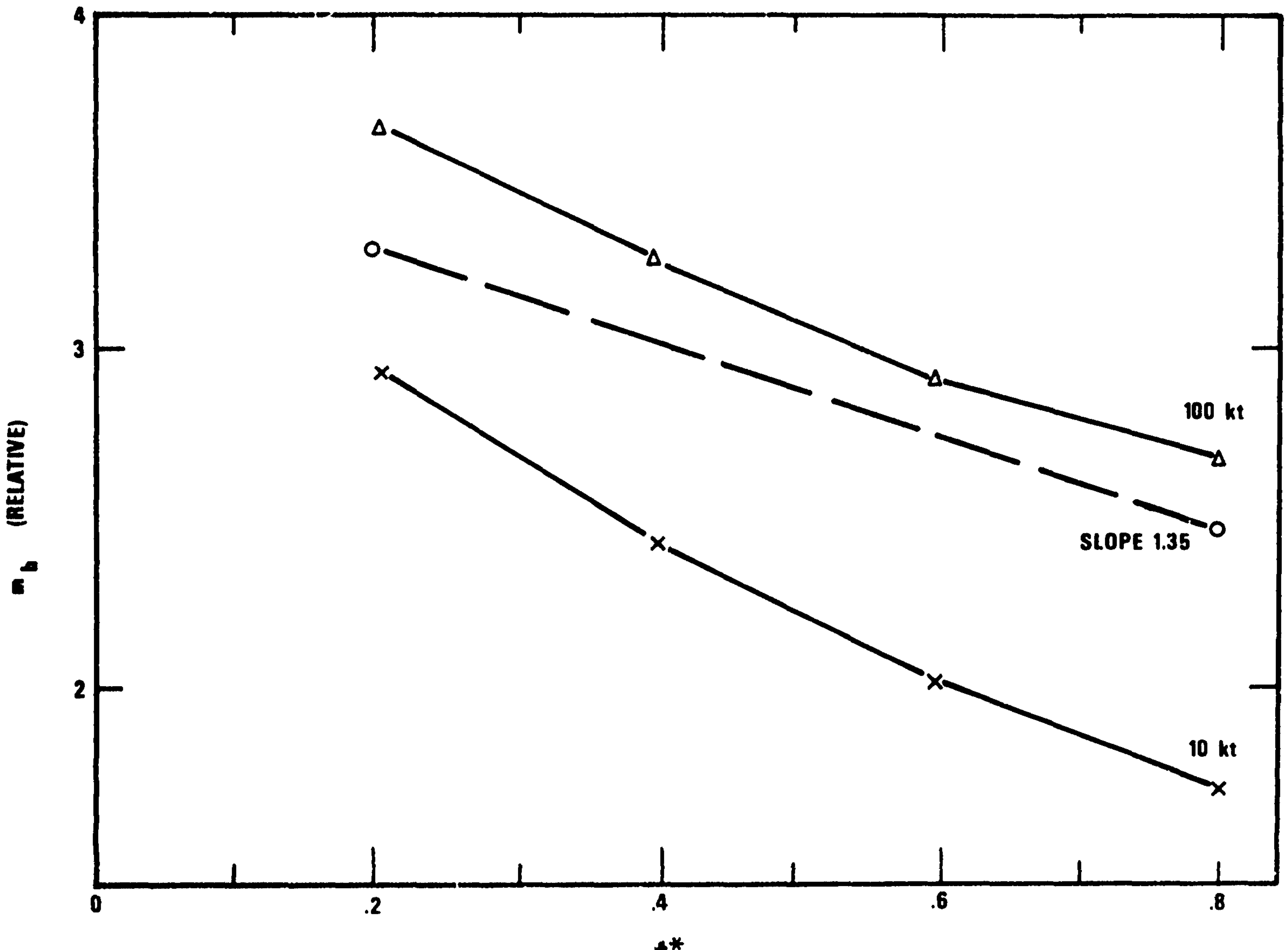

Figure 26. m_b versus t* derived by synthetic simulation of pulses from 10 and 100 kt nuclear explosions.

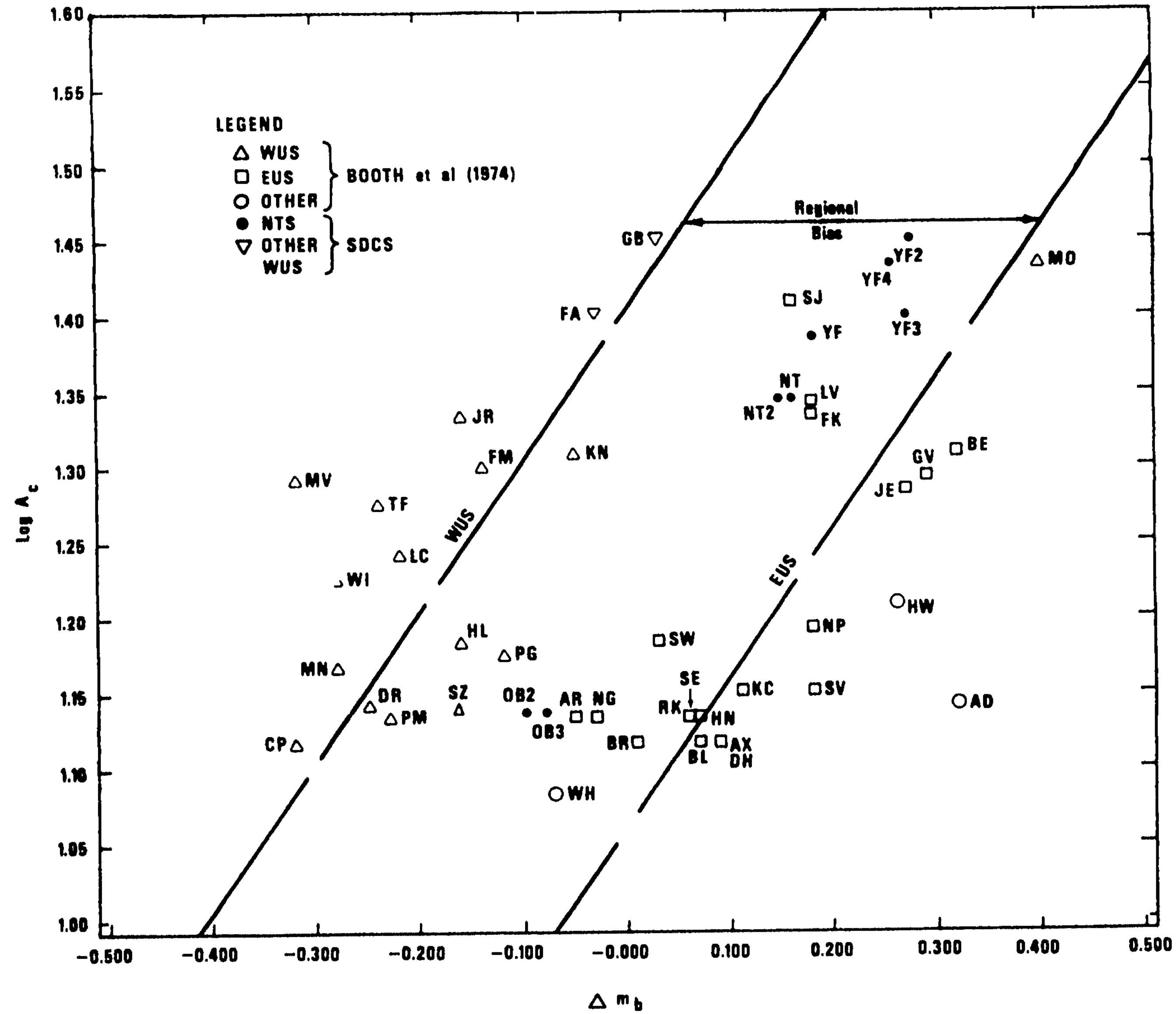

Figure 27. Comparison of residuals of Booth et al. (1974) with present results of the SDCS experiment.

and possibly SZNV, fit Booth et al's (1974) WUS population, all NTS points have higher m_b values than the average WUS population. However, using t* values would be the way to determine anelastic energy loss for outgoing P waves from NTS. Still, because of the m_b results, we assume that there is focusing under NTS for events from the Northwest and Southeast where most of the events came from. By reciprocity (Chang and von Seggern, 1977), a network deployed at these sites would see higher magnitudes from NTS than from the rest of the WUS. We do not know what a differently deployed network would show.

NOISE STUDY

To evaluate noise conditions at the SDCS sites we routinely measured the noise level preceding each event. The noise readings evenly covered each station's operational life, and the number of day and night time readings were roughly equal. Although somewhat biased by the seasonal distribution of the operational life of each station, the gross distributions of noise amplitudes indicated the average noise conditions at each site. The cumulative distributions of noise log-amplitude readings for each station are given in Figures 28 through 40. The mean values and standard deviations of noise are given in Table VI.

Cumulative distributions were also computed for all available seasons for each station. These are shown in Appendix D. Table VI summarizes the means and standard deviations. Table VII lists station coordinates.

Each station was also examined for daily noise variation. Figures 41 through 47 show some selected plots of daily noise variations over several days. Much of this noise is obviously man-made, reflecting daily routine activity; generally, this noise is high frequency. One interesting example of this daily variation was at TQMS (Figure 41), the site of the SALMON nuclear explosion. There, the surface instrument showed a high daily variation of high frequency noise at the surface, but greatly reduced noise at the deephole instrument. The high frequency surface noise tended to follow the daily cycle of human activity. In quiet periods when "cultural noise" was low, the noise consisted mostly of common storm microseisms that had the same amplitude in the borehole as on the surface.

Daily variation at YFNV (Figure 43) shows great mid-day maxima that must be associated with drilling activity at Yucca Flats. Some secondary peaks at midnight must also be associated with human activity, but we do not know the source of the noise. The sites FANV - OB2NV (Figures 42 and 44) also show peaks during the middle of the day that are presumably associated with normal working hours. Figures 45 through 47, that show stations GBNM, RKON and HNME, do not display the regularity in the daily noise

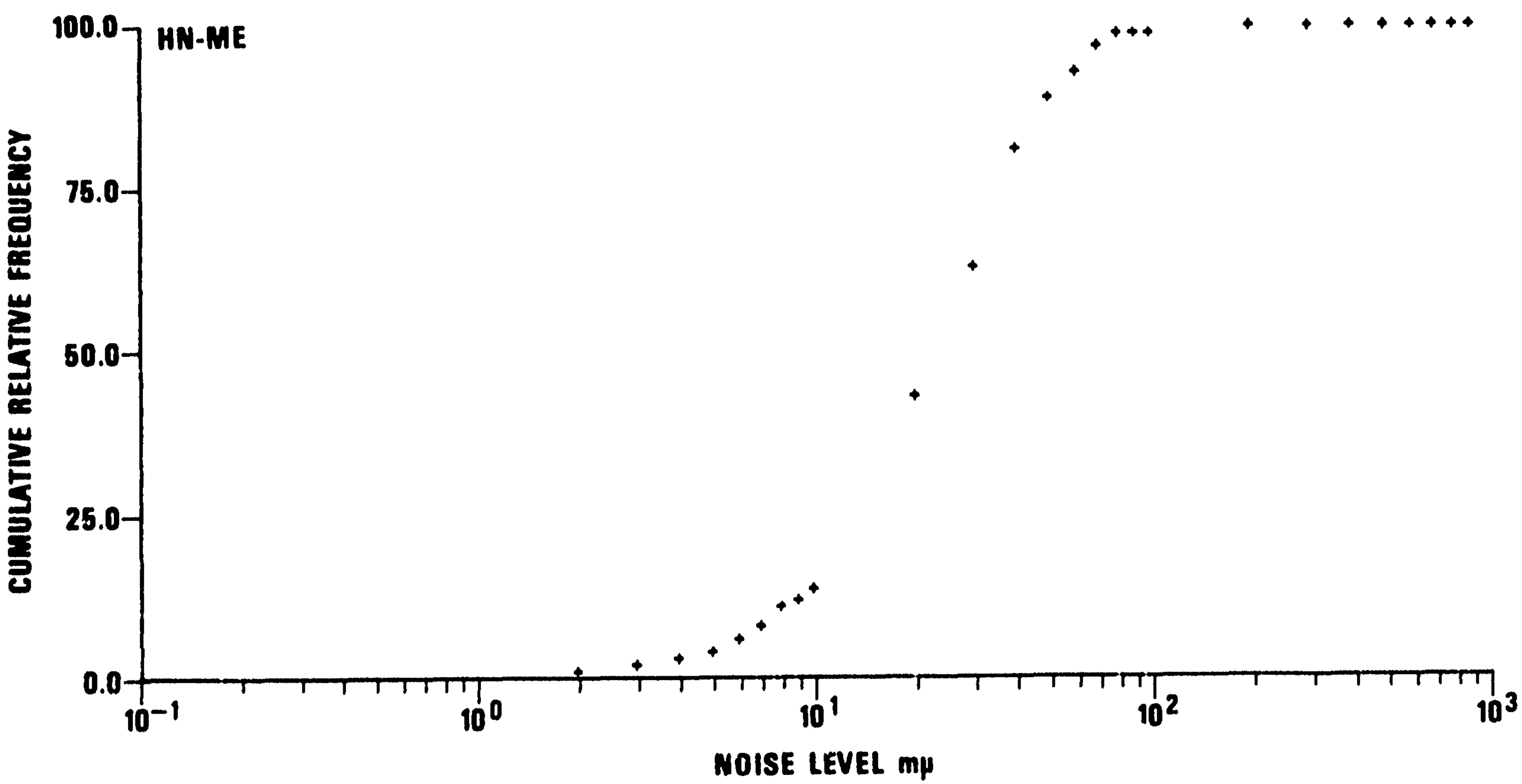

Figure 28. Cumulative frequency histogram of all noise readings at HNME.

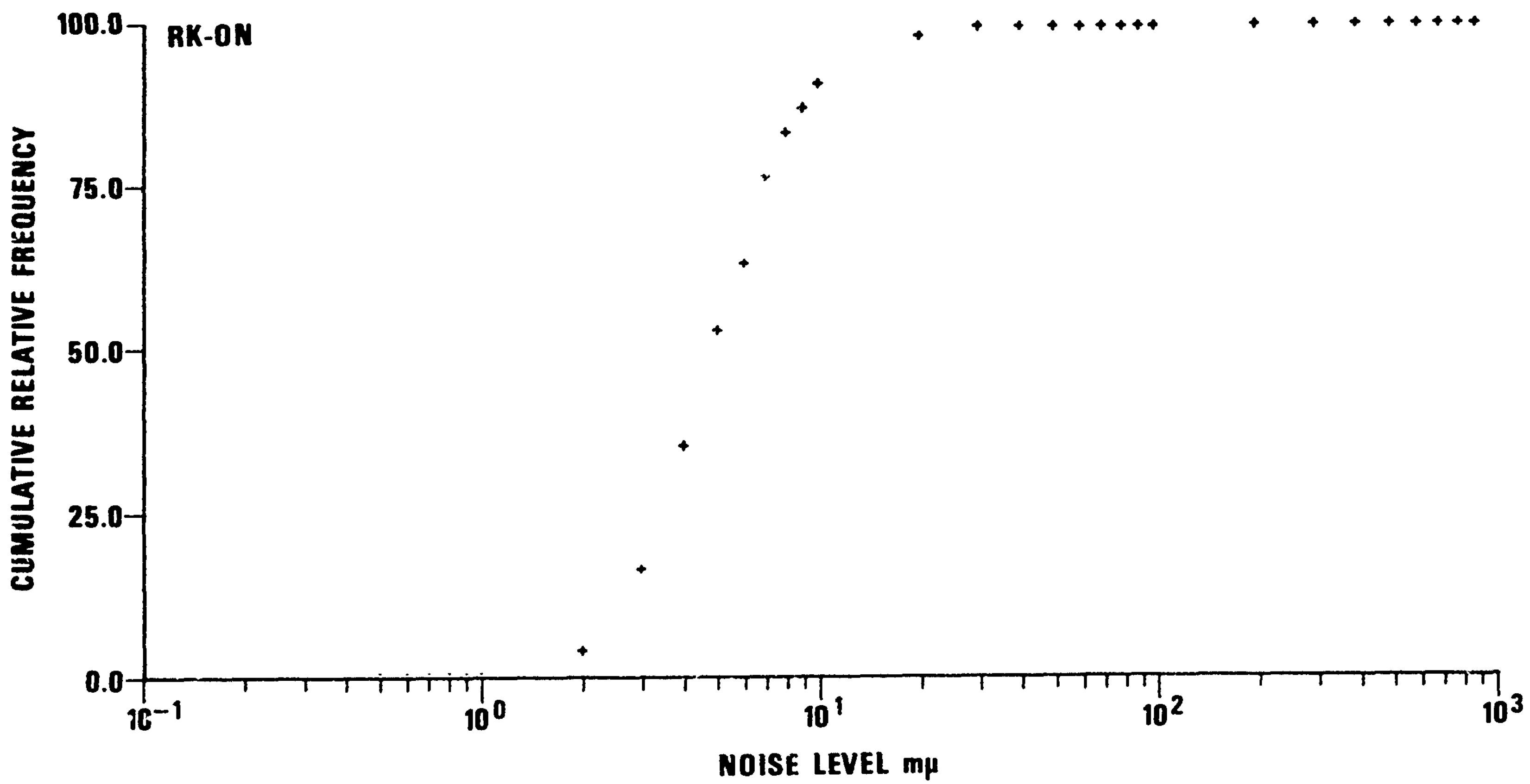

Figure 29. Cumulative frequency histogram of all noise readings at RKON.

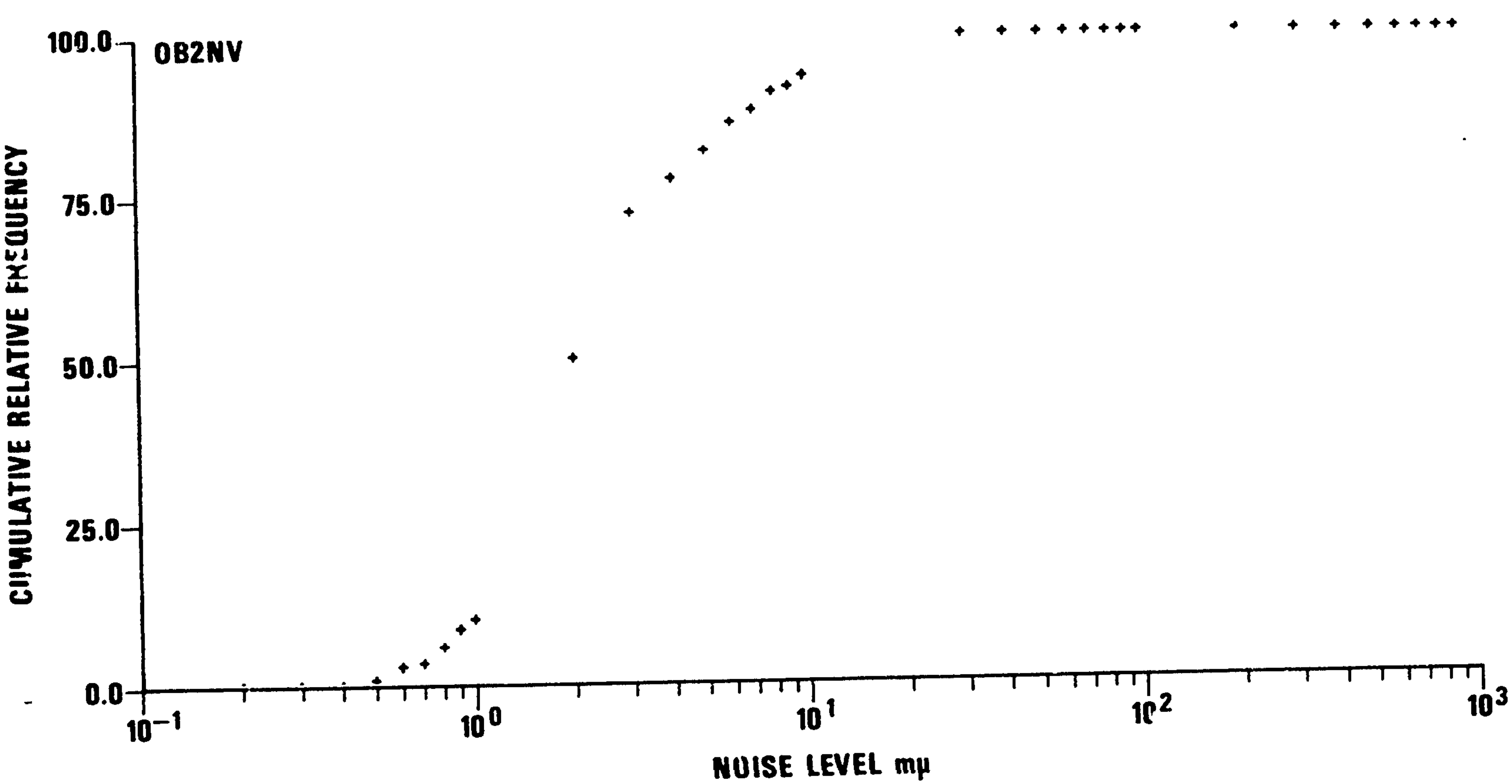

Figure 30. Cumulative frequency histogram of all noise readings at OB2NV.

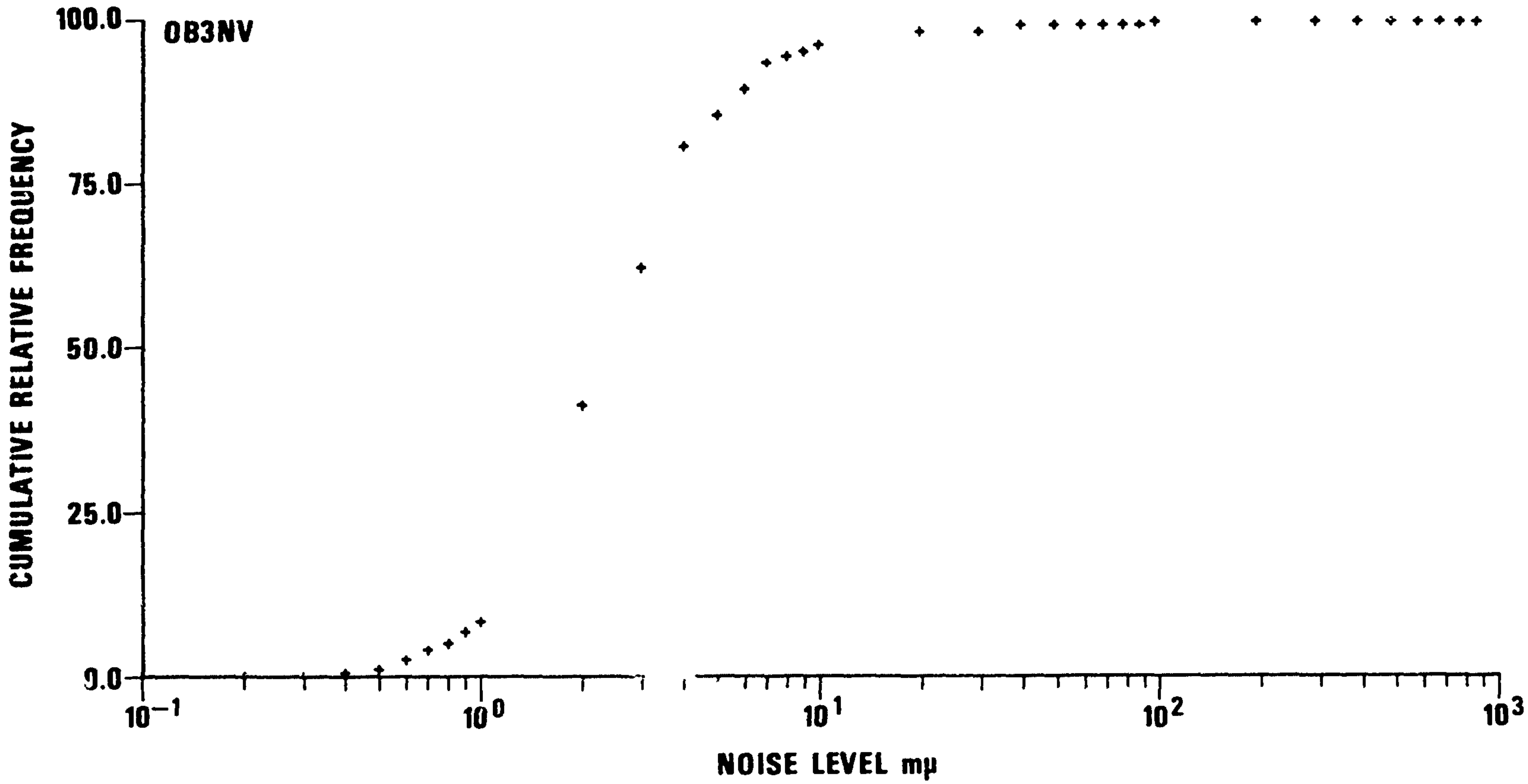

Figure 31. Cumulative frequency histogram of all noise readings at OB3NV.

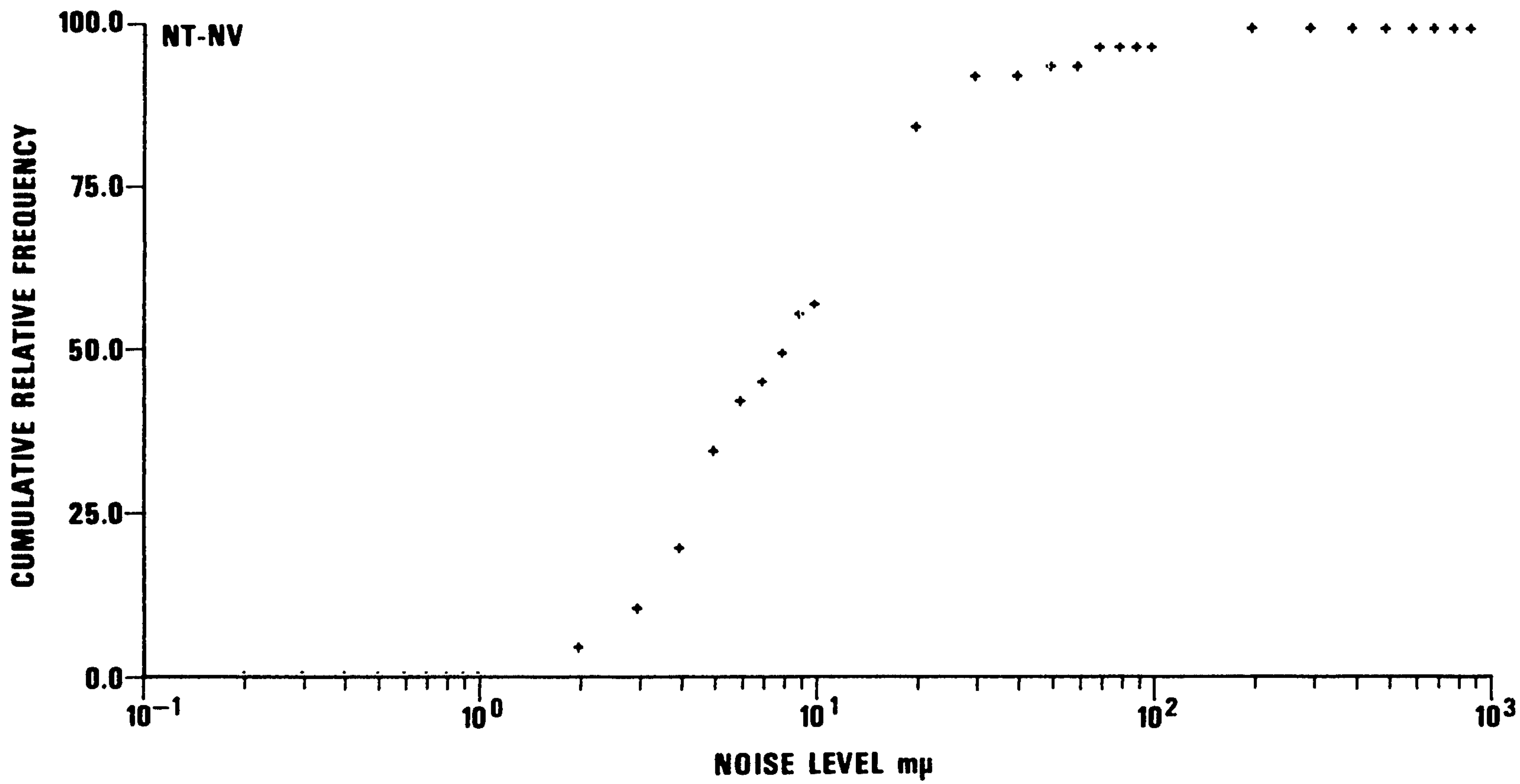

Figure 32. Cumulative frequency histogram of all noise readings at NTNV.

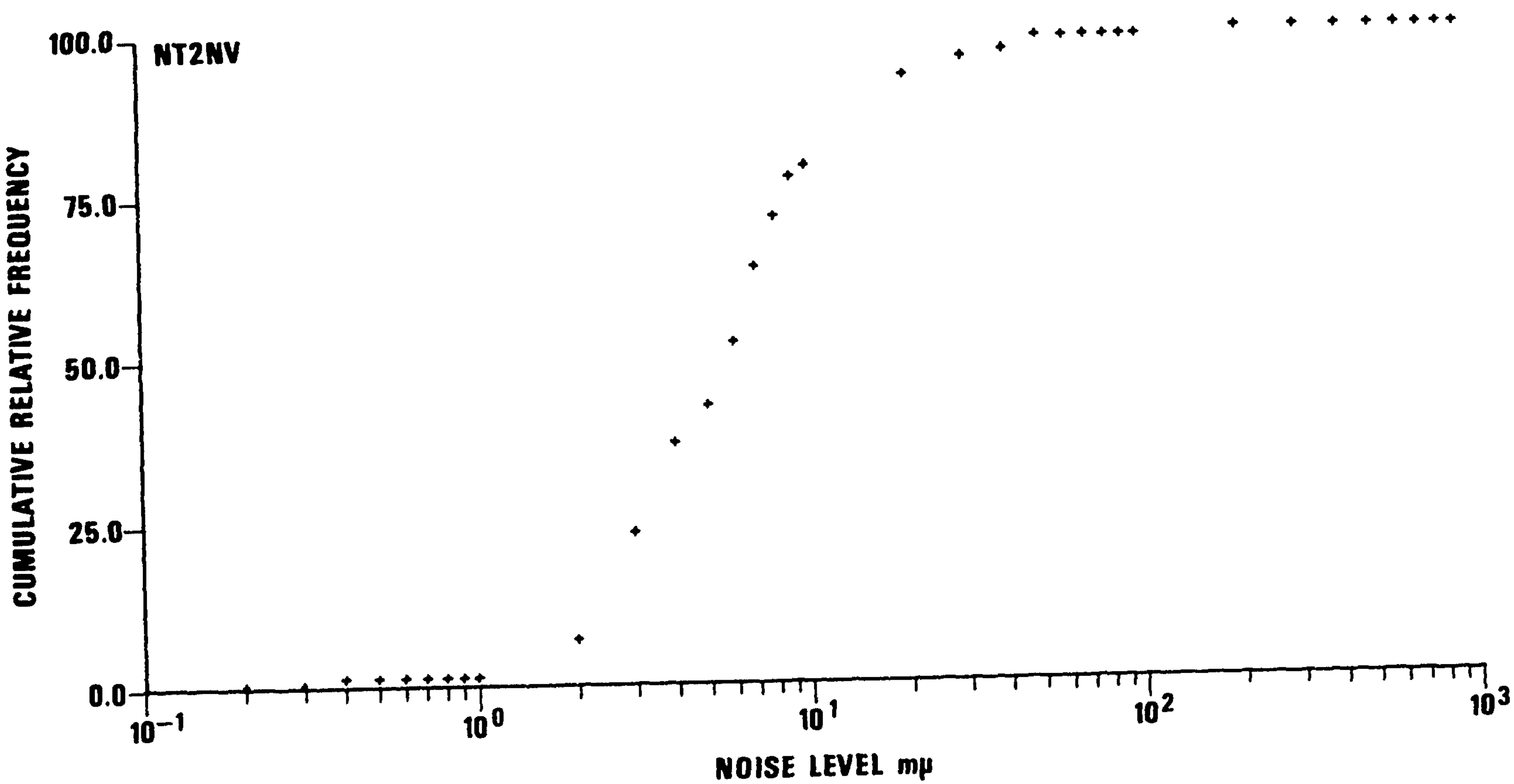

Figure 33. Cumulative frequency histogram of all noise readings at NT2NV.

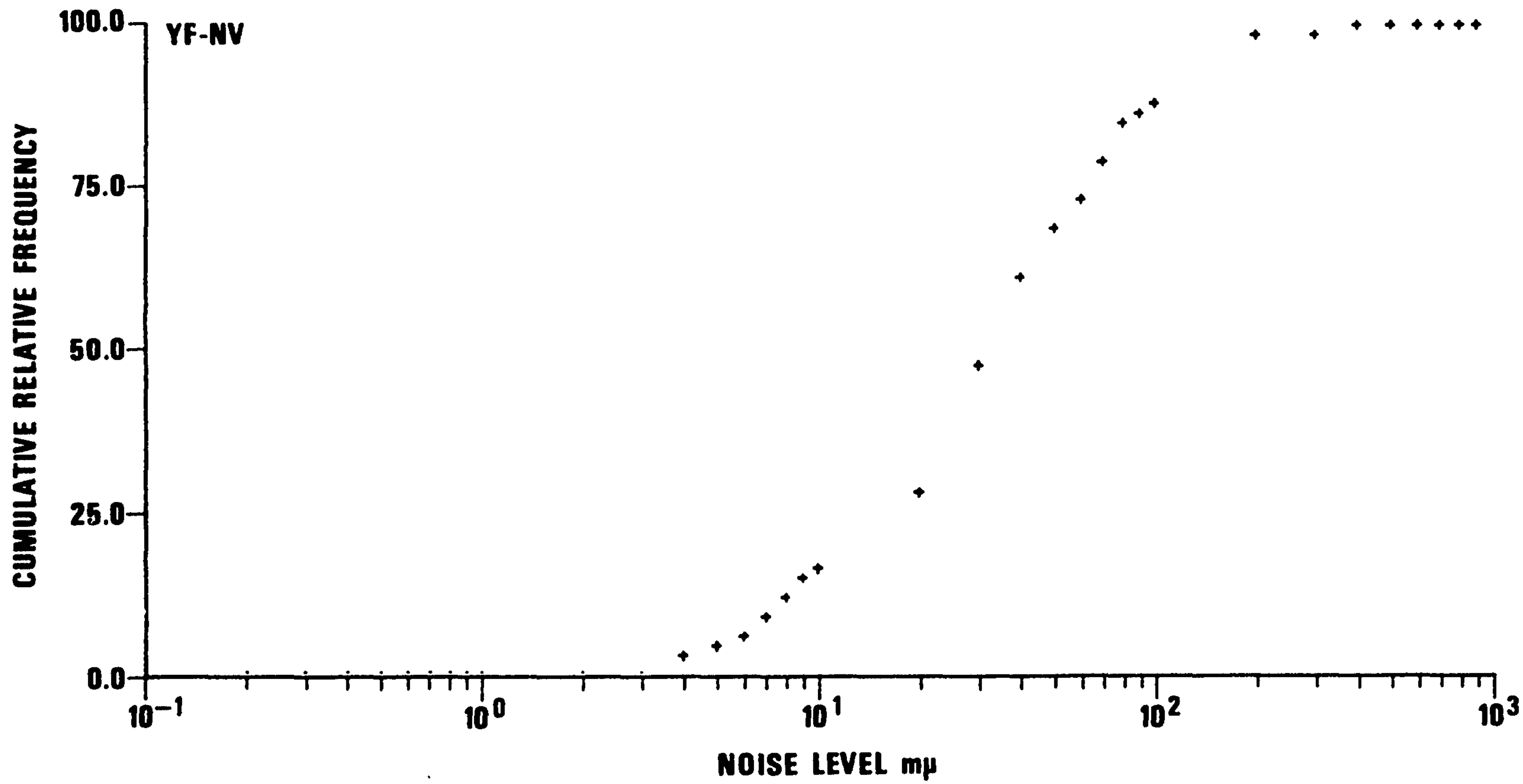

Figure 34. Cumulative frequency histogram of all noise readings at YFNV.

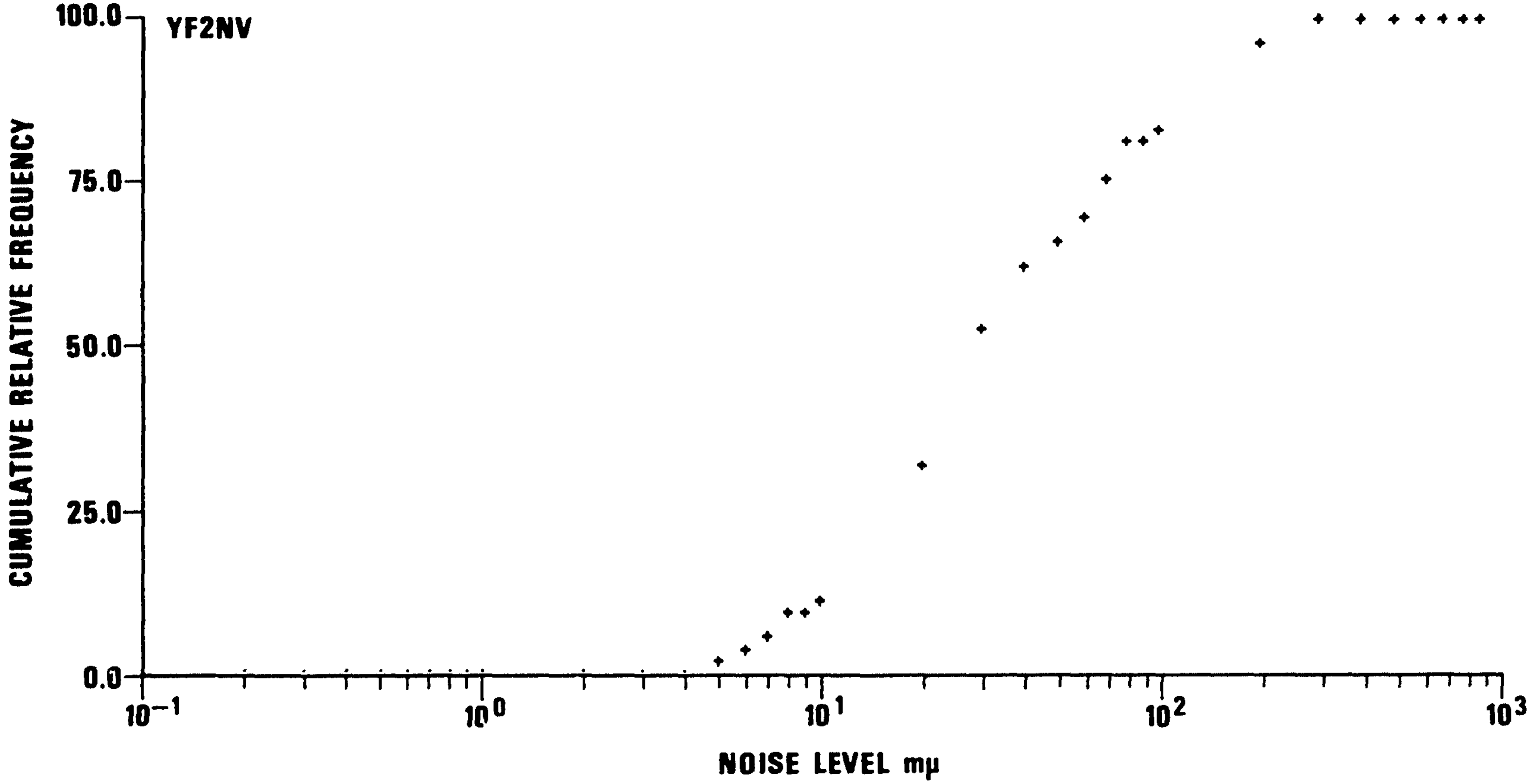

Figure 35. Cumulative frequency histogram of all noise readings at YF2NV.

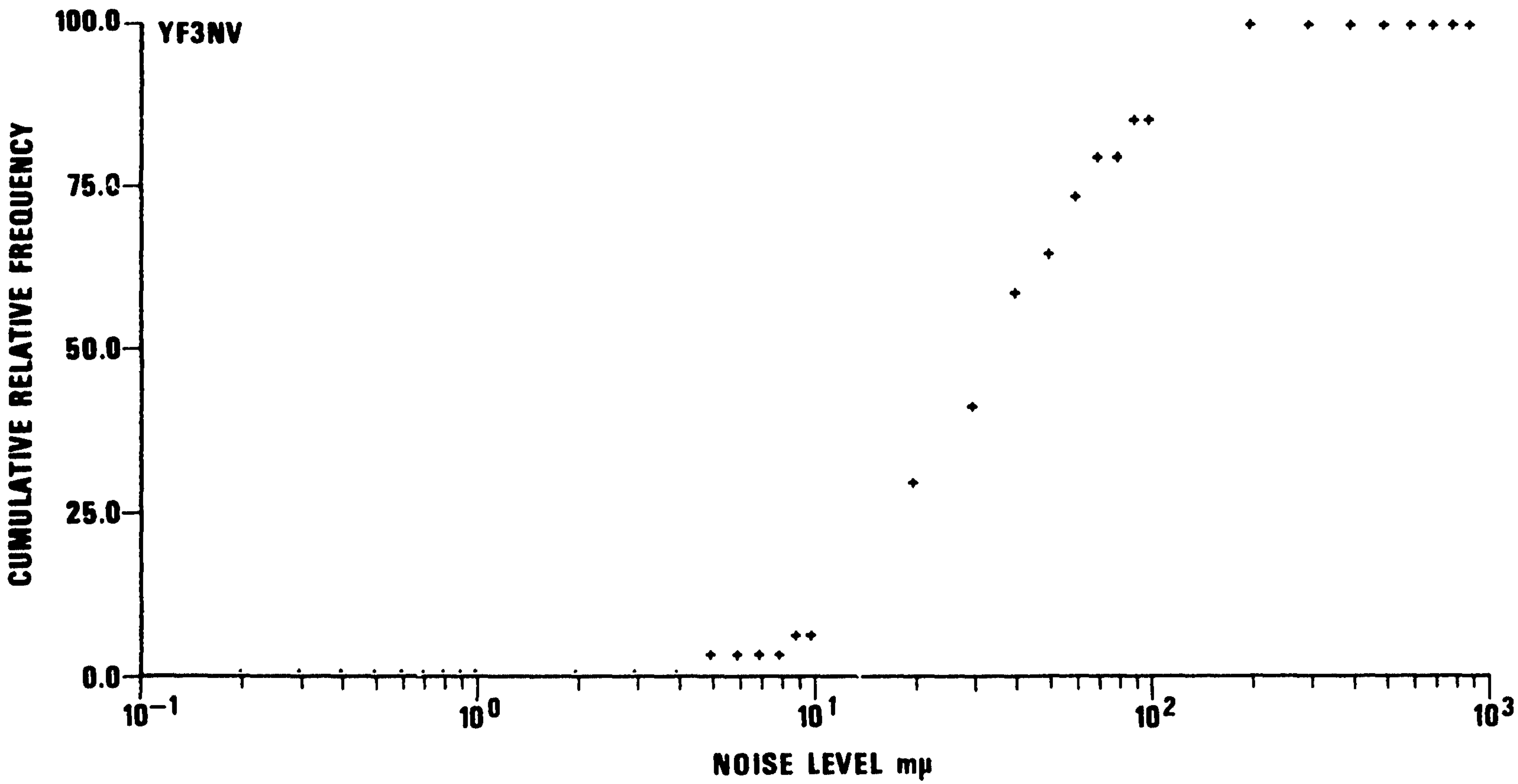

Figure 36. Cumulative frequency histogram of all noise readings at YF3NV.

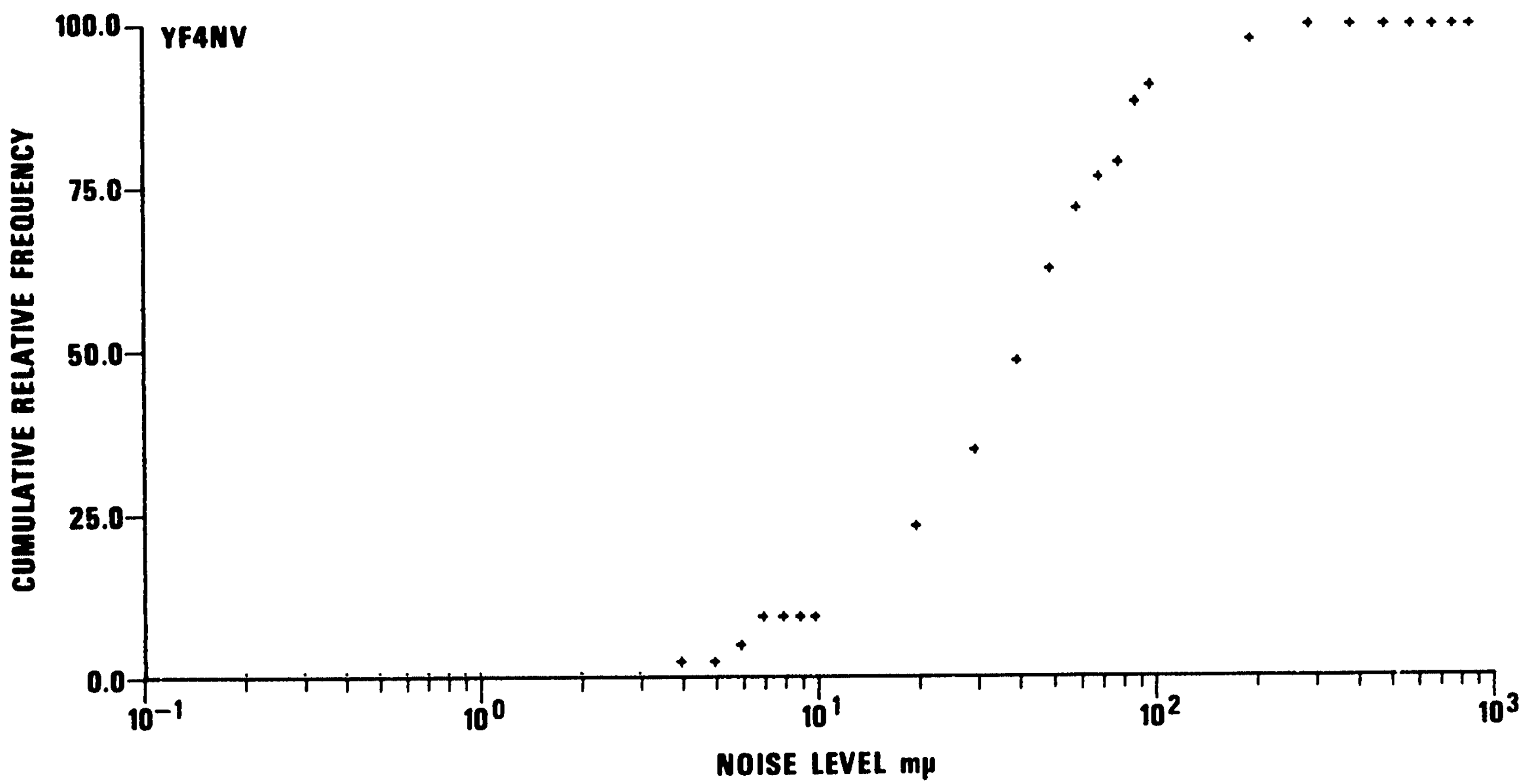

Figure 37. Cumulative frequency histogram of all noise readings at YF4NV.

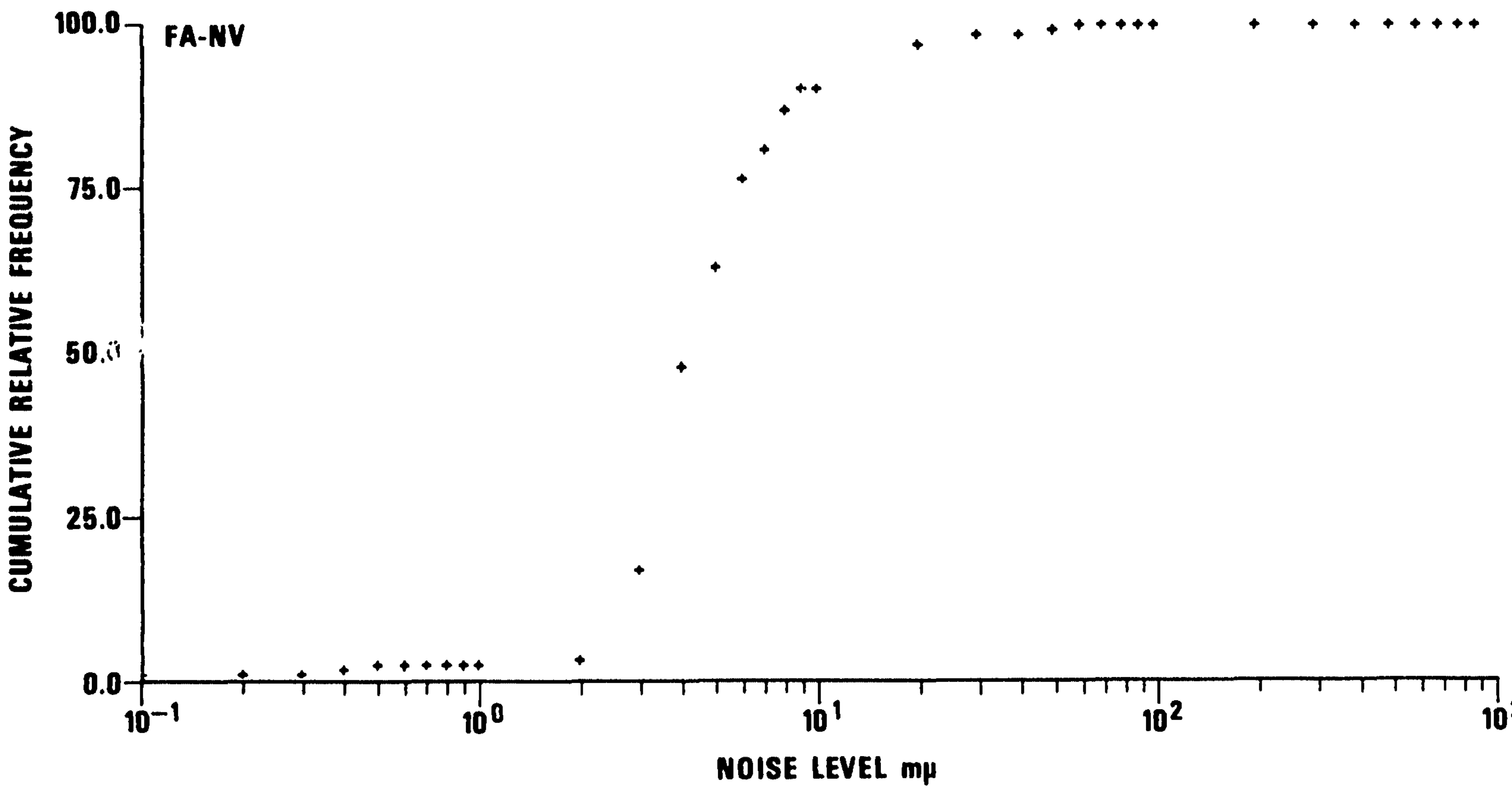

Figure 38. Cumulative frequency histogram of all noise readings at FANV.

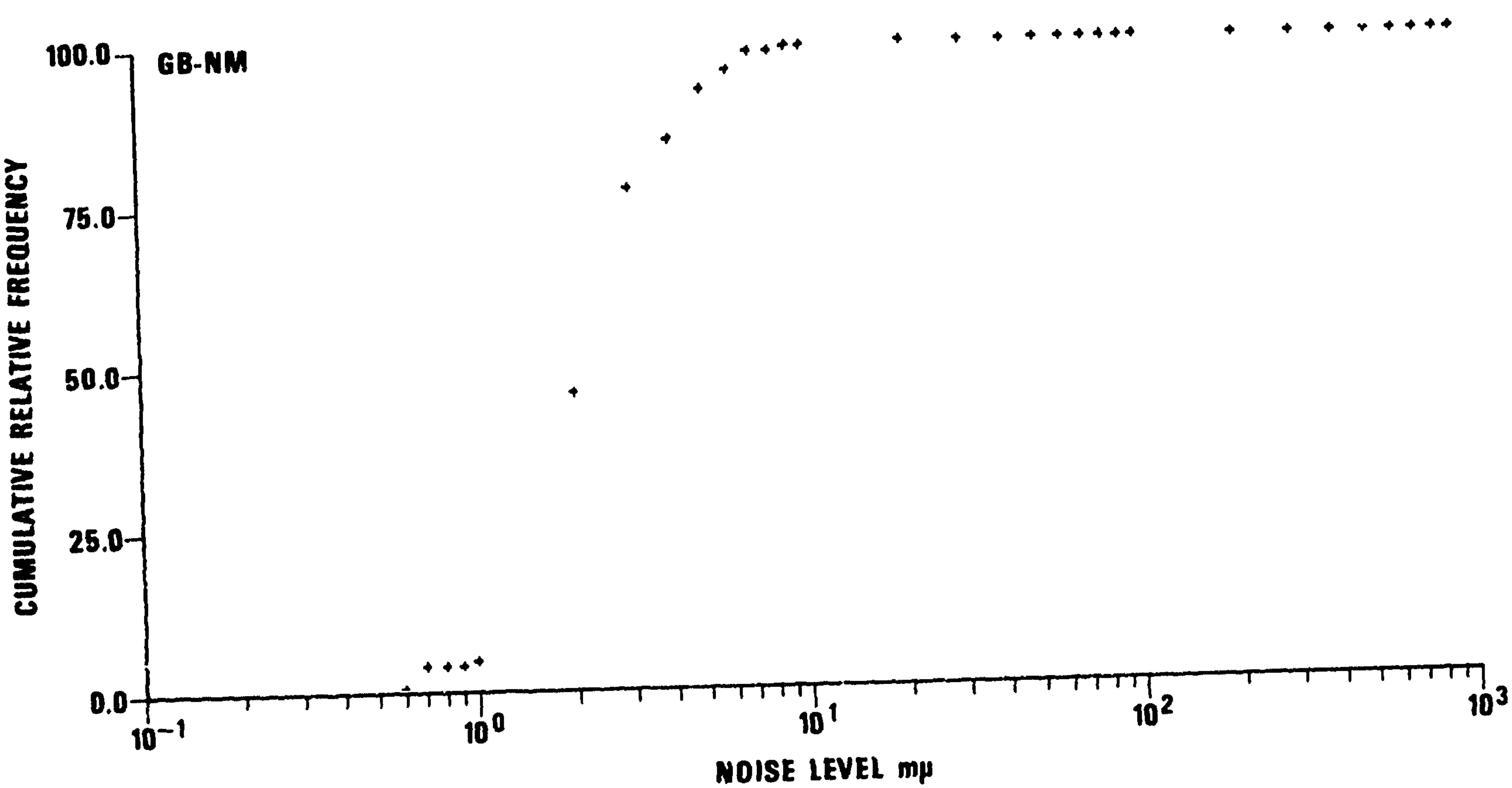

Figure 39. Cumulative frequency histogram of all noise readings at GBNM.

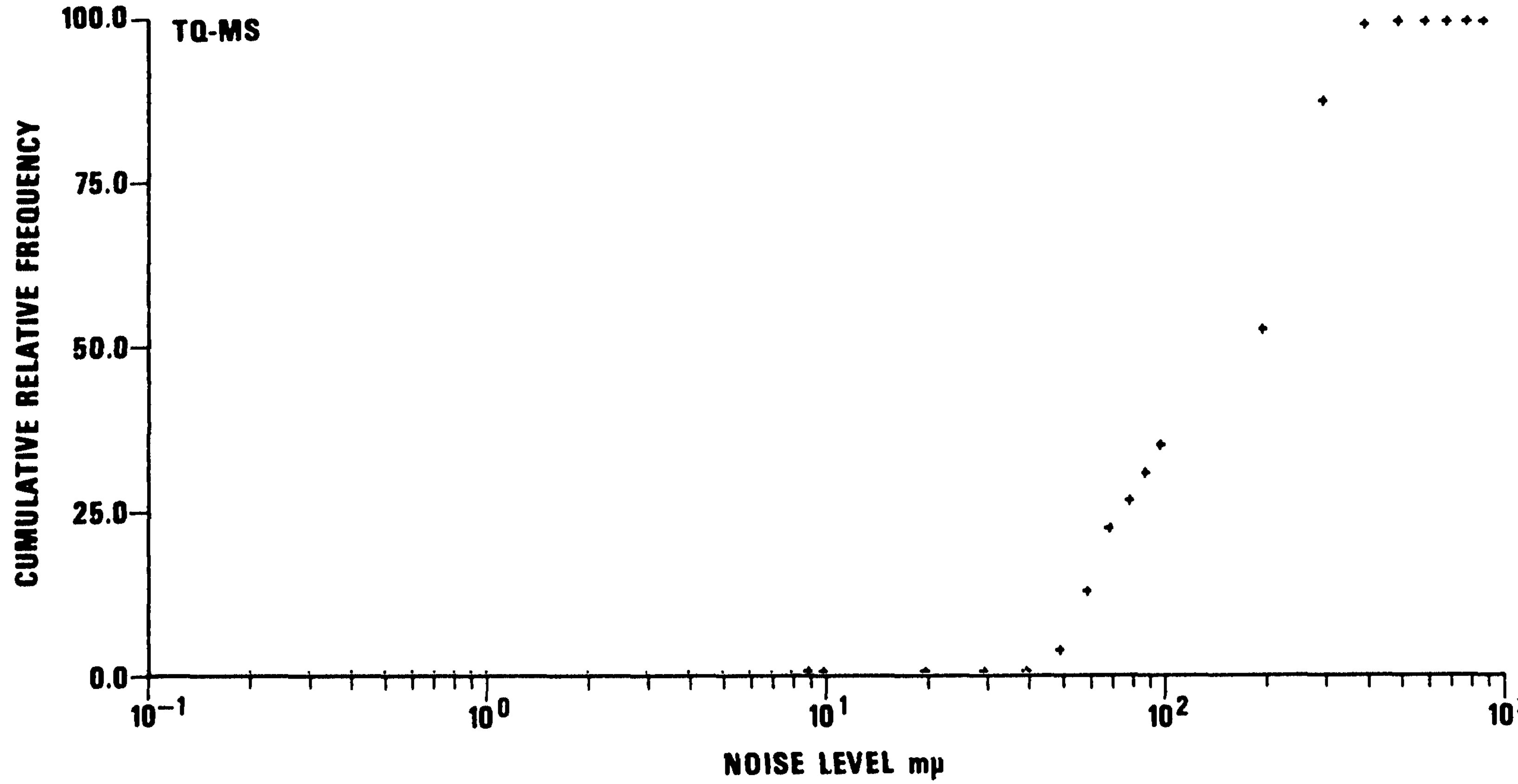

Figure 40. Cumulative frequency histogram of all noise readings at TQMS.

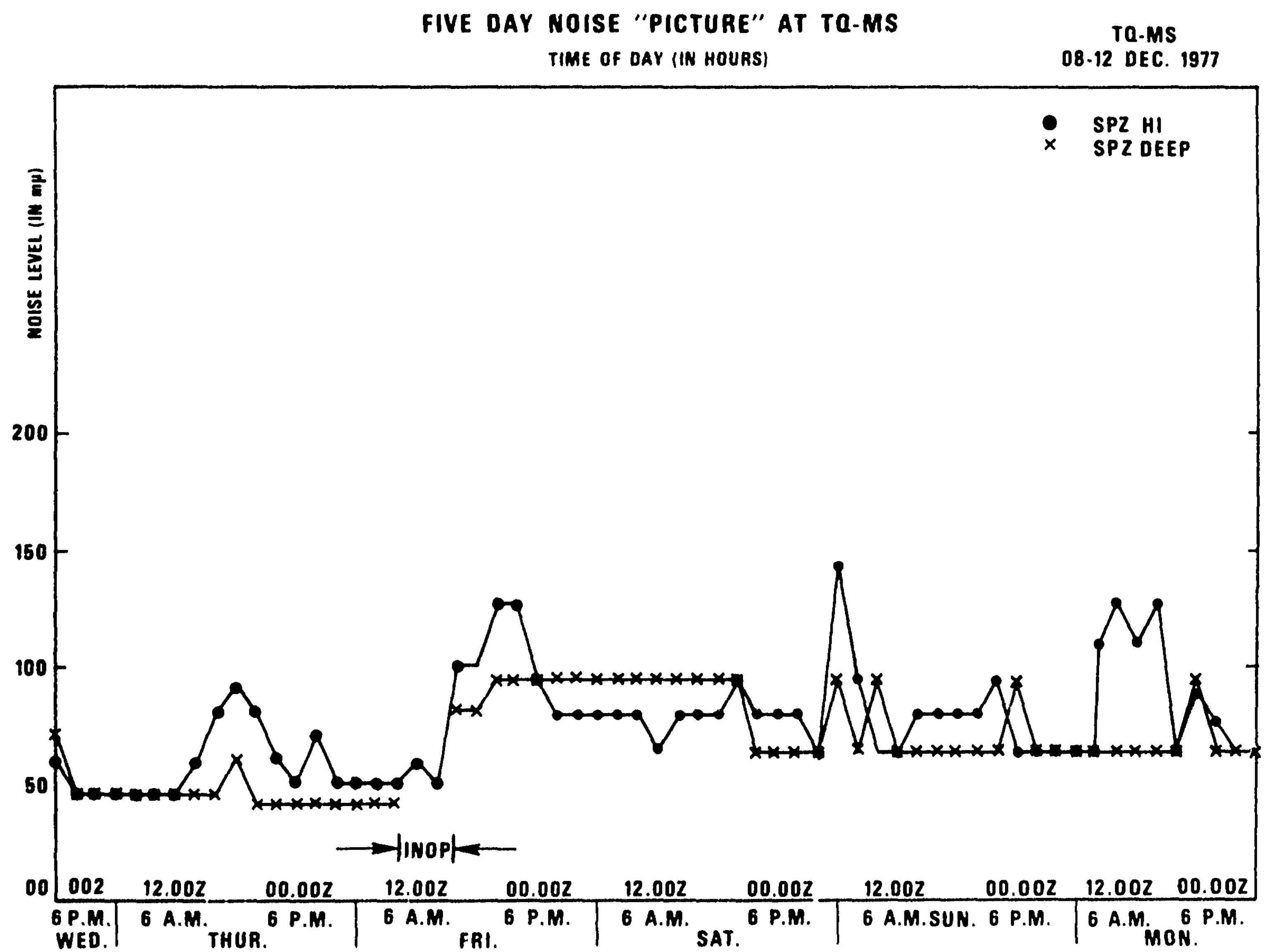

Figure 41. Daily variation of noise at TQMS.

TABLE VI

Mean, standard deviation, and number of readings for total and seasonal noise variation at the SDCS stations.

	TOTAL				SPRING				SUMMER				FALL				WINTER		
STATION	$\mu_{m\mu}$	$\log\mu_1$	σ	N	$\mu_{m\mu}$	$\log\mu_2$	σ	N	$\mu_{m\mu}$	$\log\mu_1$	σ	N	$\mu_{m\mu}$	$\log\mu_1$	σ	N	$\mu_{m\mu}$	$\log\mu_1$	σ
HN-ME	20.5	1.3	0.3	101	17.5	1.2	0.4	16	15.2	1.2	0.3	14	21.2	1.3	0.3	55	27.9	1.4	0.3
IF-ME																			
RK-ON	4.6	0.7	0.3	268	3.1	0.5	0.2	68	4.8	0.7	0.2	48	6.0	0.8	0.2	109	4.3	0.6	0.3
OB2NV	2.0	0.3	0.4	350	2.3	0.4	0.4	64	1.7	0.2	0.4	112	2.0	0.3	0.4	147	2.2	0.3	0.3
OB3NV	2.1	0.3	0.3	205	1.7	0.2	0.3	9	2.2	0.3	0.4	106	2.0	0.3	0.3	90			
NT-NV	8.2	0.9	0.4	66	12.6	1.1	0.4	18					7.7	0.9	0.5	29	5.9	0.8	0.3
NT2NV	5.3	0.7	0.4	103	5.7	0.8	0.3	17					5.3	0.7	0.4	46	5.1	0.7	0.4
YF-NV	29.7	1.5	0.4	67	42.2	1.6	0.4	17	24.7	1.4	0.5	35	30.6	1.5	0.4	15			
YF2NV	31.3	1.5	0.4	53	23.0	1.4	0.5	3	29.9	1.5	0.4	35	37.3	1.6	0.4	15			
YF3NV	34.2	1.5	0.4	34					30.0	1.5	0.4	22	43.5	1.6	0.5	12			
YF4NV	35.1	1.5	0.4	43	63.2	1.8	0.3	3	31.4	1.5	0.4	25	37.4	1.6	0.5	15			
FA-NV	4.5	0.6	0.3	132					4.2	0.6	0.3	103	5.3	0.7	0.2	29			
GB-NM	2.2	0.3	0.2	172				1	2.3	0.4	0.2	108	2.0	0.3	0.3	63			
GQ-NV	5.5	0.7	0.2	54									5.5	0.7	0.2	54			
RR-CD																			
TQ-MS	138.4	2.1	0.3	187					191.9	2.3	0.2	113	83.3	1.9	0.2	74			

TABLE VII

Geographical Coordinates of Stations Discussed in this Report

	LAT	LON
HNME	46° 09' 43"	57° 59' 09"
RKON	40° 40' 20"	93° 40' 20"
OB2NV	37° 13' 31"	116° 03' 28"
OB3NV	37° 13' 47"	116° 03' 28"
YFNV	37° 04' 06"	116° 00' 07"
YF2NV	37° 04' 10"	116° 00' 44"
YF3NV	37° 04' 22"	116° 01' 27"
YF4NV	37° 04' 29"	116° 02' 12"
FANV	38° 38' 26"	116° 13' 22"
GBNM	36° 41' 13"	107° 13' 34"

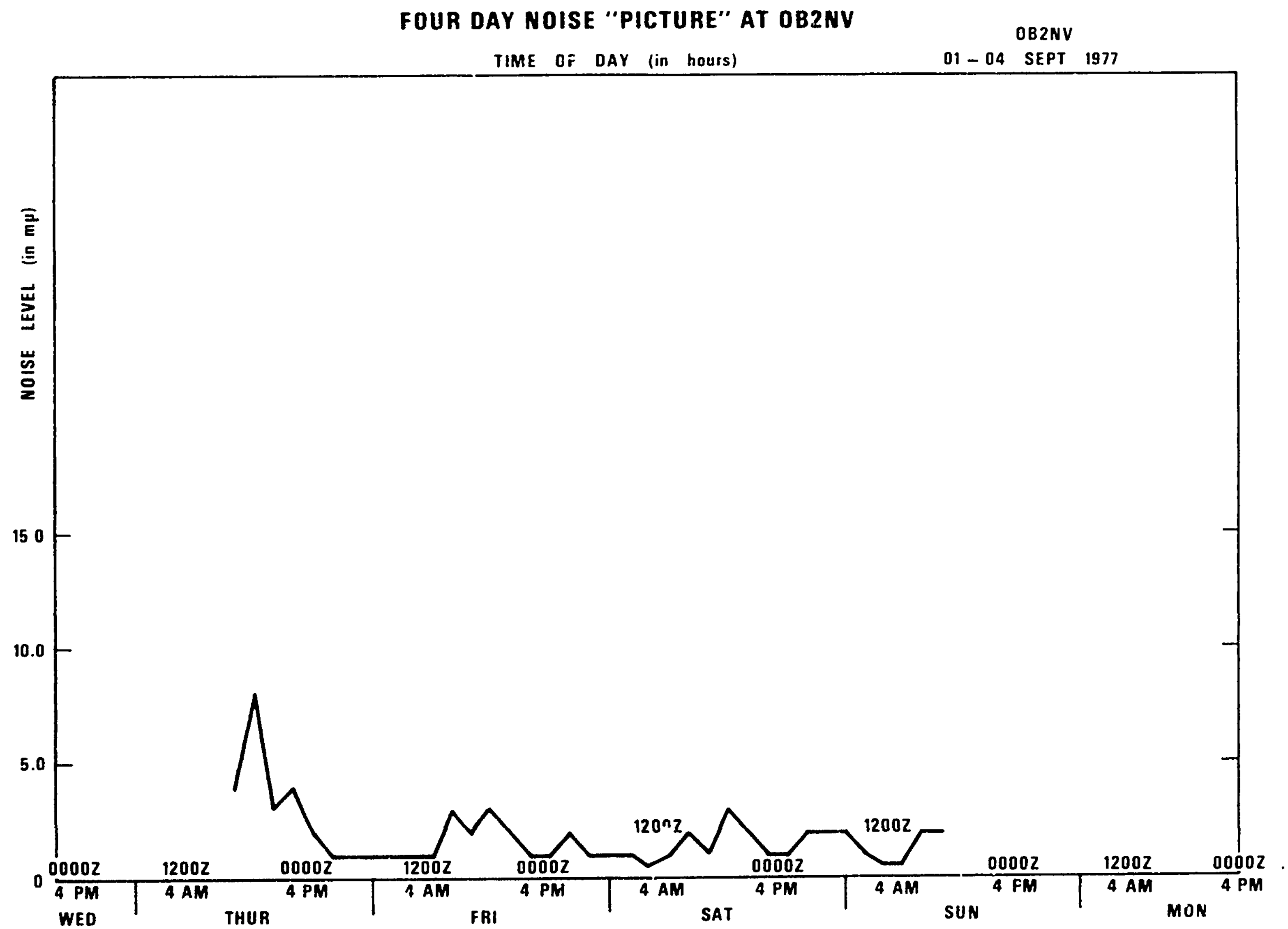

Figure 42. Daily variation of noise at OB2NV.

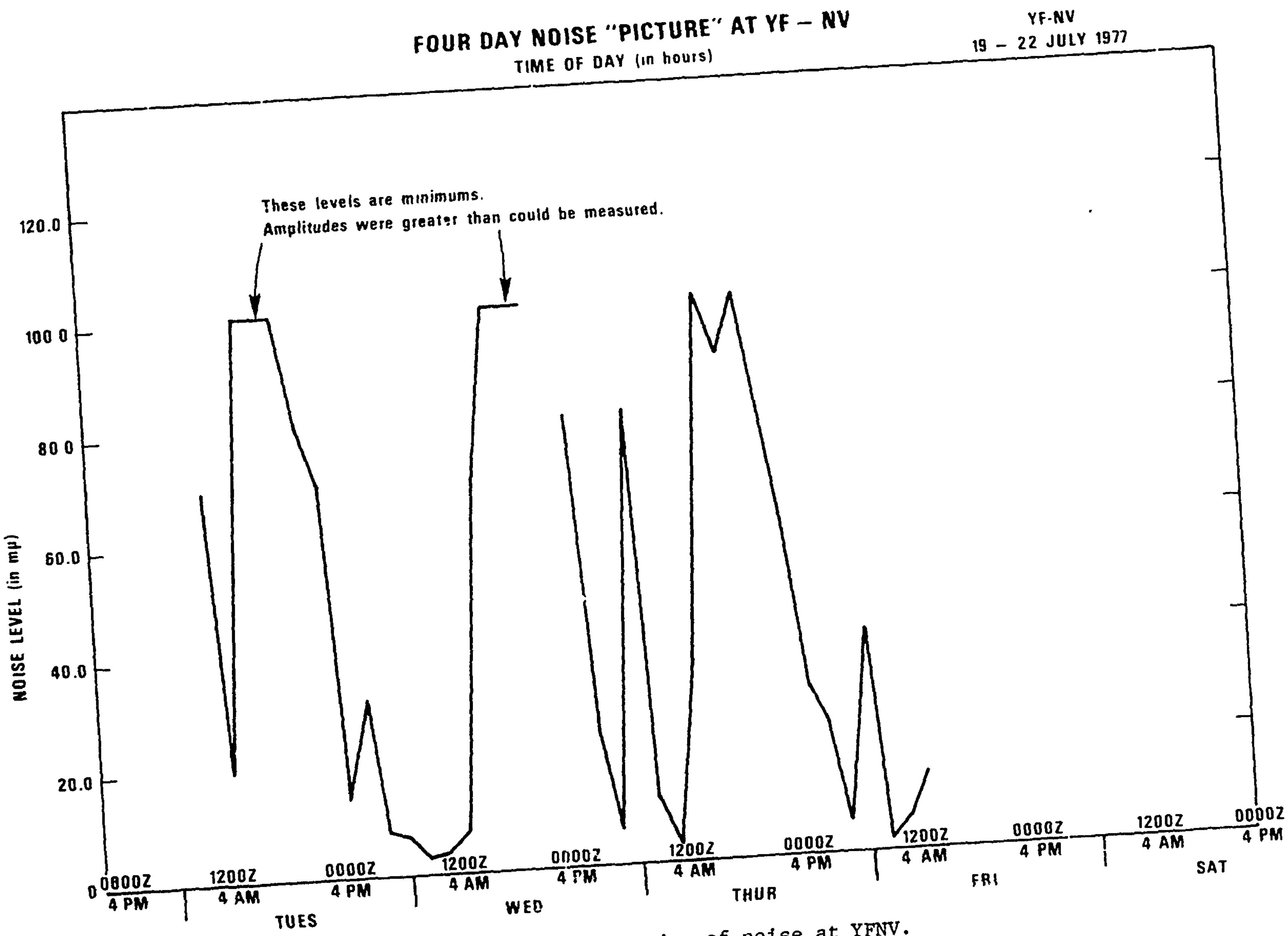

Figure 43. Daily variation of noise at YFNV.

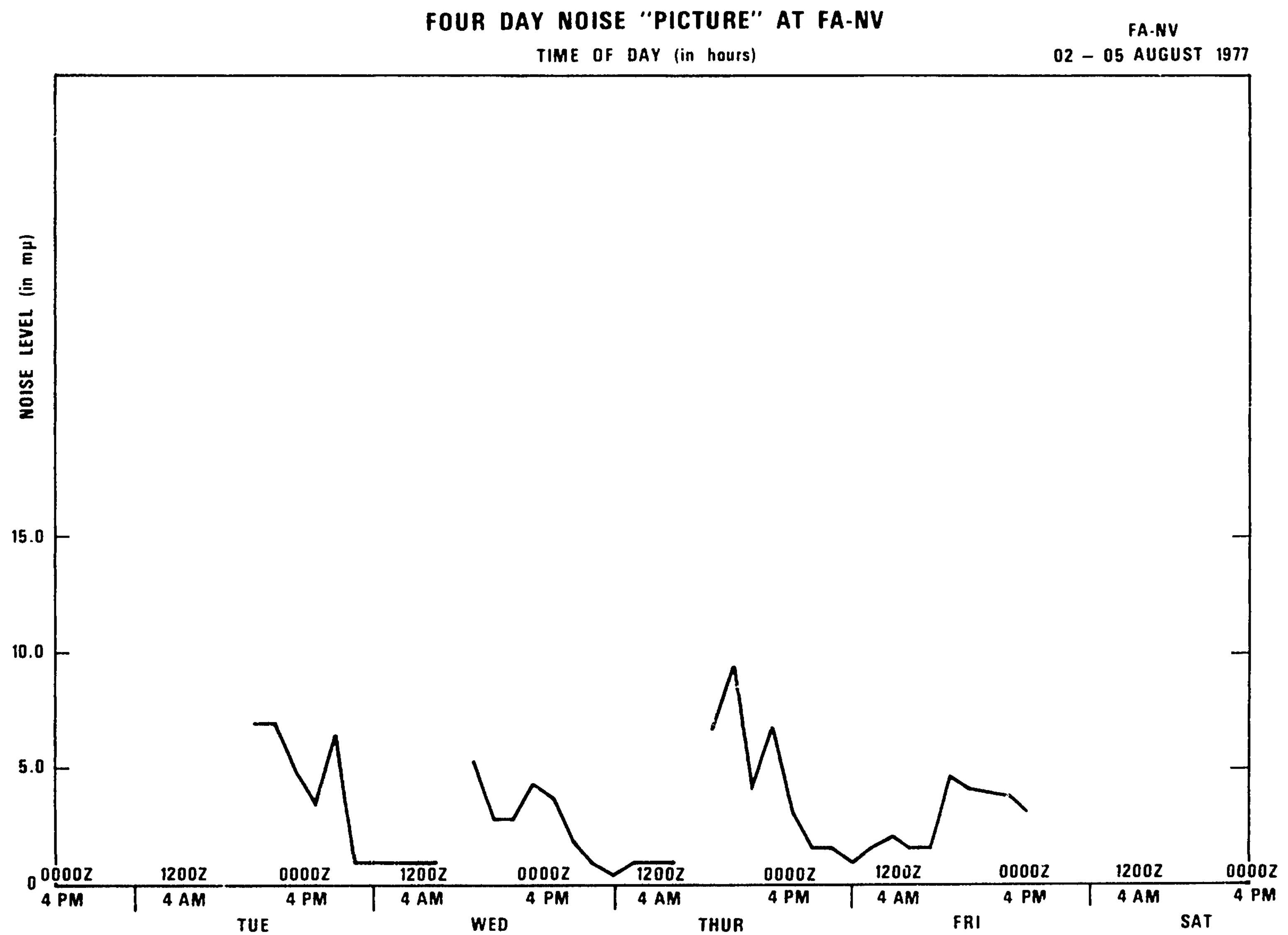

Figure 44. Daily variation of noise at FANV.

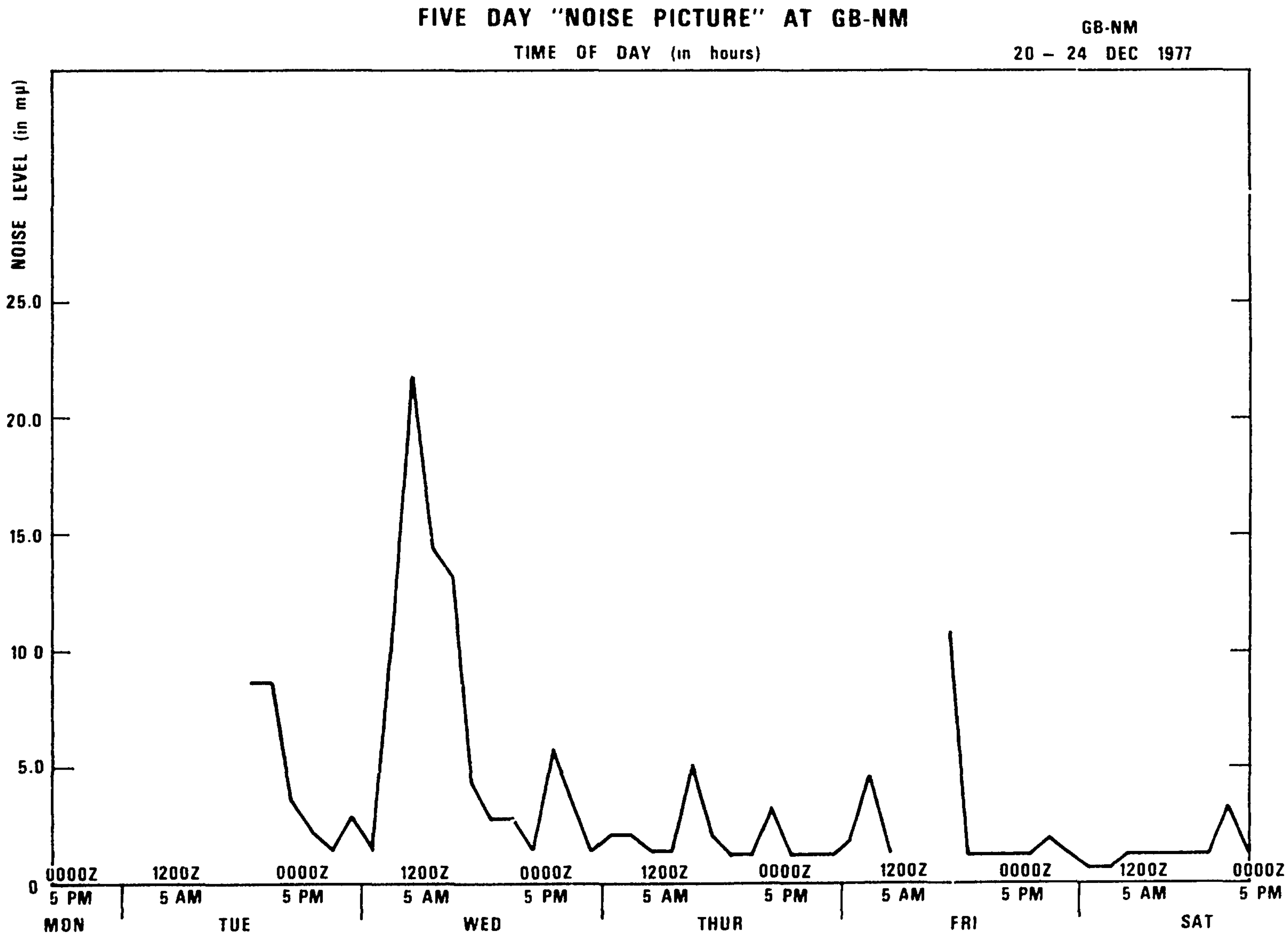

Figure 45. Daily variation of noise at GBNM.

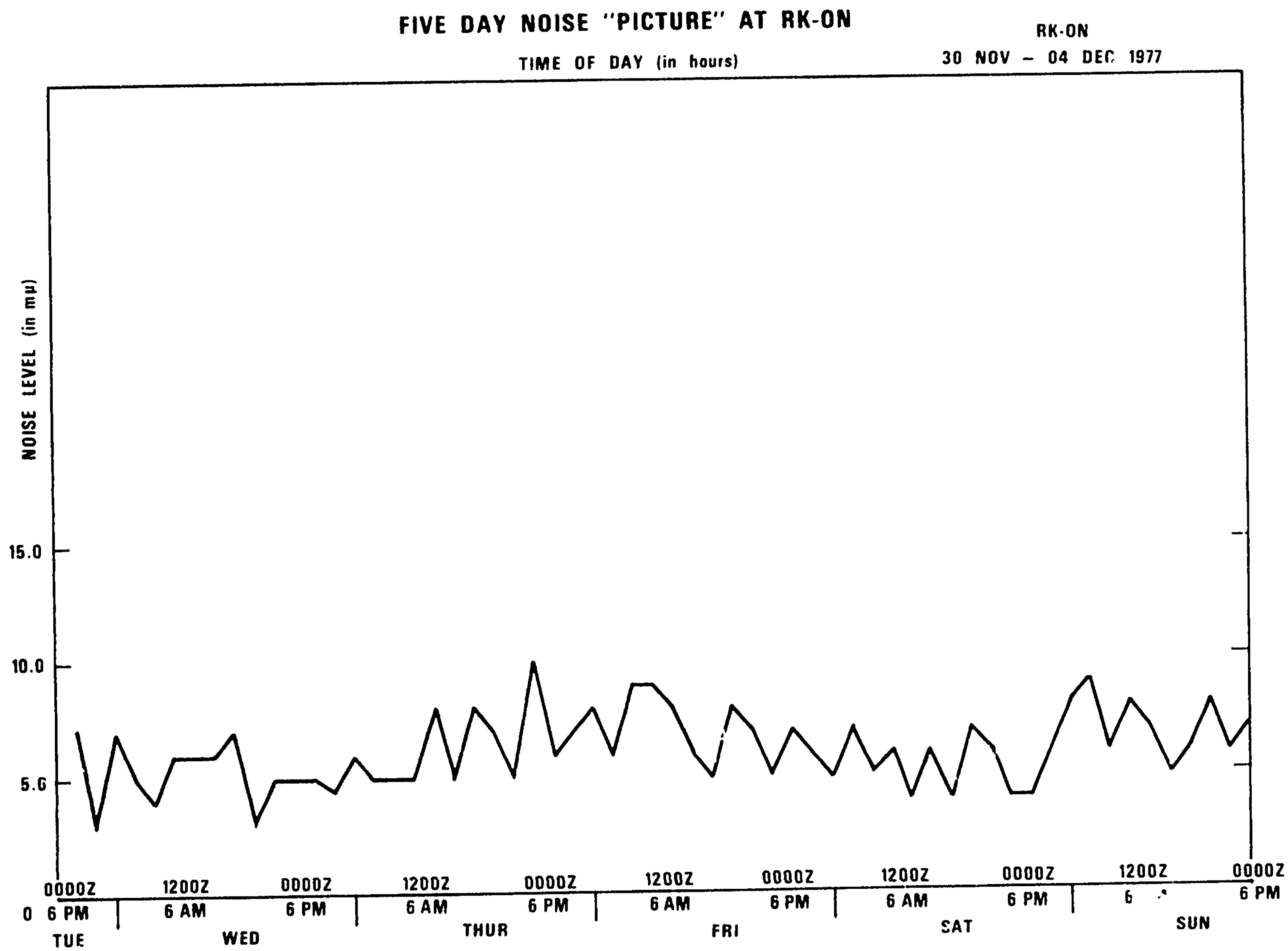

Figure 46. Daily variation of noise at RKON.

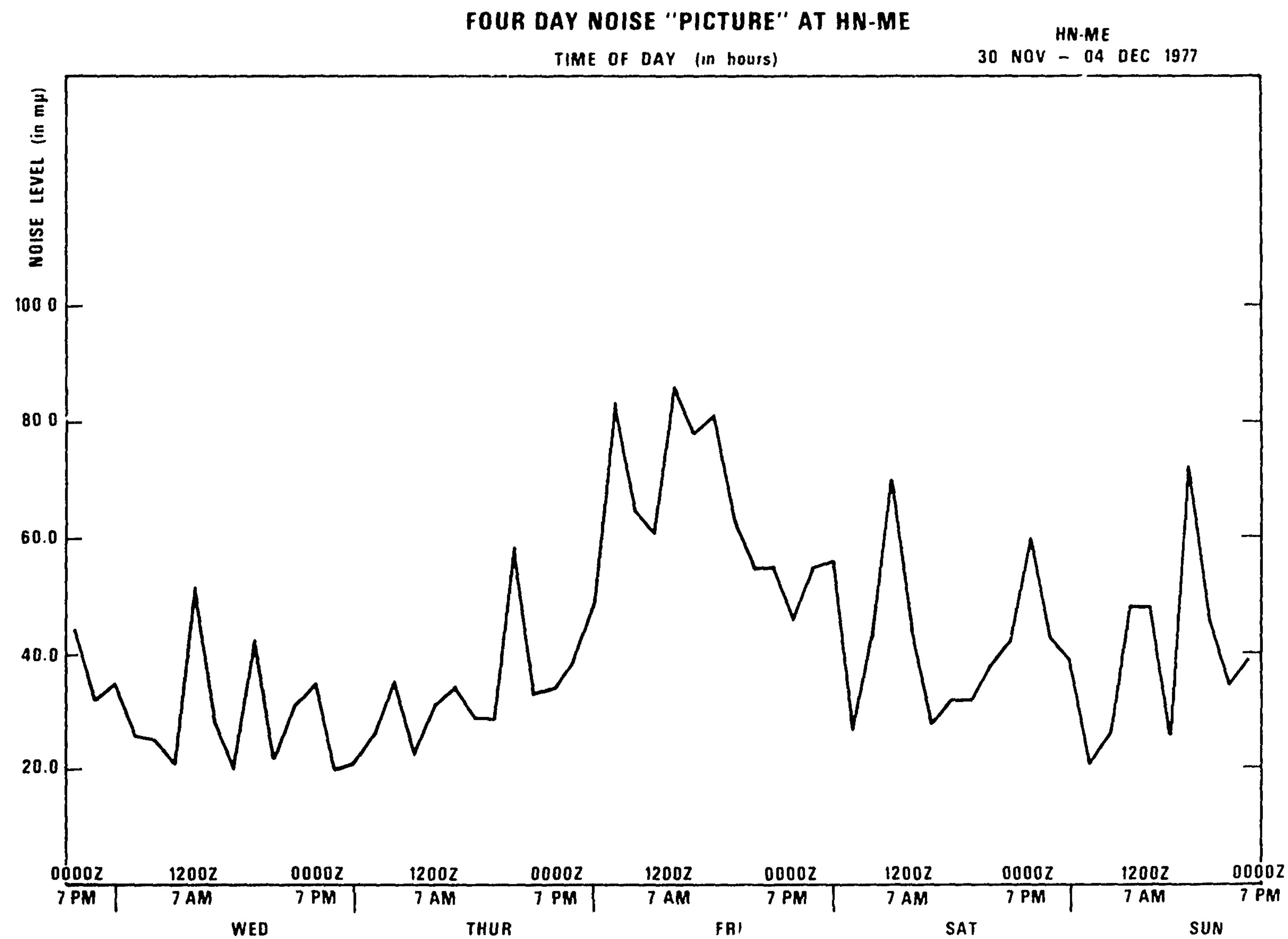

Figure 47. Daily variation of noise at HNME.

variations. For GBNM, two peaks were picked during the days around Christmas; however, the peaks were not consistent with what was considered normal activity.

The mean values of noise (in millimicrons) and logarithms and standard deviations of the logarithms are self-explanatory. Seasonal variation is apparent at HNME, a station dominated by long-period storm microseisms. Stations at NTS show a similar seasonal variation. TQMS and GBNM on the other hand, show lower amplitudes in the Fall, which can be explained by seasonal variation of cultural noise.

CONCLUSIONS

1. The results of spectral analyses show that when compared to RKON and HNME, a consistent loss of high frequency content in P waves can be observed at the SDCS stations located in the WUS.

2. The average teleseismic P wave amplitudes are also lower in the WUS, if crustal amplification corrections have been made. Nevertheless, amplitudes of teleseismic P waves at NTS seem to be higher than at sites in other areas of the WUS. This is presumably due to focusing under the site.

3. No indication of inherent bias in the determination of relative magnitude differentials was found.

4. Relative t* derived from spectral ratio measurements is a numerically more stable quantity than the magnitude residuals. It has less scatter and depends less on interstation distance and the local crust. We recommend that local mantle magnitude attenuation is estimated from the empirical formula

$$\Delta m_b = -1.36\ \Delta t^*$$

SUGGESTIONS FOR FURTHER WORK

While one shortcoming of this study is the relatively small number of stations where both m_b and t* biases are known, the existing data set could be easily extended by adding more stations using historical LRSM data. The multiple regression analysis involving m_b, t* and crustal amplification could then be used to better evaluate interrelationships between these quantities. Another useful project might include extending the study to SRO's and overseas observatories.

ACKNOWLEDGEMENTS

We gratefully acknowledge help from many of our fellow employees at Geotech. John Woolson and his group were instrumental in the success of this study by performing A/D conversions and the tedious quality control chores needed. John Sherwin and his group in Dallas collected the field data and transcribed the analog data to film. Dr. R. H. Shumway assisted in the statistical analysis. Drs. R. R. Blandford and S. Alexander contributed to the project with useful suggestions and criticisms.

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APPENDIX A

Listing of events, amplitudes and period readings and computed magnitudes m_b and m_a'.

1 14 SEP 76 15:46: 5.2 5.06 EASTEP IS. 26.4S 115.8W 179.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	84.4	74.0	0.83	5.54	5.46
RK-ON	79.	269.2	0.76	5.77	5.55
OB2NV	63.6	42.7	0.94	5.27	5.24

2 15 SEP 76 3:15:20.0 5.84 AUSTRIA 46.2N 13.3E 32.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	53.6	70.0	0.81	5.27	5.18
RK-CN	64.4	51.6	0.49	5.20	4.89
OB2NV	85.1	56.7	1.09	5.51	5.55

** OMITTED **

3 15 SEP 76 9:21:18.4 5.30 AUSTRIA 46.3N 13.2E 32.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	53.5	62.8	0.78	5.21	5.10
RK-CN	64.3	107.6	0.54	5.54	5.27
OB2NV	85.0	40.3	1.19	5.43	5.51

4 29 SEP 76 3: 0: 0.0 0.0 N.Z. 73.5N 53.7E 3.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	54.7	192.4	0.85	5.76	5.59
RK-CN	54.4	169.4	0.44	5.52	5.16
OB2NV	69.7	39.1	0.84	5.16	5.08

5 19 SEP 76 12:23:31.1 5.27 S.PANAMA 7.2N 82.4W 125.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	40.9	95.2	0.71	5.11	4.96
RK-CN	44.7	281.1	1.01	5.80	5.80
OB2NV	43.0	180.0	1.45	5.73	5.89

6 19 SEP 76 20:57:58.1 5.41 MEXICO 17.9N 100.6W 140.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	39.0	80.2	0.78	4.96	4.86
RK-CN	33.4	42.2	0.61	4.86	4.64
OB2NV	23.8	320.4	0.86	5.45	5.38

7 2 SEP 76 10:20:17.6 5.12 EL SALVADOR 13.2N 89.9W 128.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	37.8	134.5	1.30	5.44	5.55
RK-CN	37.8	378.0	0.70	5.65	5.49
OB2NV	33.5	62.2	1.04	5.22	5.24

8 6 SEP 76 9:56:23.2 4.97 N.ATLANTIC 58.1N 32.1W 39.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	24.6	138.5	0.70	5.20	5.05
RK-ON	35.2	70.0	0.75	5.12	5.00
OB2NV	56.0	17.9	1.06	4.80	4.82

9 5 SEP 76 20:11:27.0 5.04 MEXICO 18.5N 101.1W 140.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	38.8	49.5	1.00	4.82	4.82
RK-ON	32.9	48.5	0.80	5.00	4.91
OB2NV	23.0	80.5	0.96	4.89	4.87

10 5 SEP 76 20:11:43.6 5.17 MEXICO 18.7N 100.7W 139.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	38.5	106.8	0.96	5.17	5.15
RK-CN	32.7	72.3	1.00	5.26	5.26
OB2NV	23.0	1052.0	1.14	6.12	6.18

11 9 SEP 76 9:27:46.0 5.05 SVALBARD 77.6N 8.0E 11.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	42.2	153.7	1.13	5.44	5.49
RK-ON	43.1	27.6	0.54	4.45	4.18
OB2NV	60.0	35.1	0.71	4.92	4.77

12 29 SEP 76 9:52:33.0 5.08 CUBA 19.3N 80.6W 109.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	33.1	144.8	0.70	5.43	5.28
OB2NV	35.6	120.1	0.86	5.36	5.30

```
13   25 SEP 76   21:47:20.6   5.13     EASTER IS.              25.4S  115.0W    179.0     0.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA     DIST     AMP      T                 MB                         MB
     RK-ON   79.5    157.5   0.85              5.59                       5.52
     OB2NV   63.6     32.6   1.28              5.36                       5.46

14   26 SEP 76    6:35:49.3   4.55     KAMCHATKA               51.1N  157.2E    313.6     0.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA     DIST     AMP      T                 MB                         MB
     RK-CN   61.7     18.9   0.63              4.79                       4.59
     OB2NV   60.0      8.8   0.80              4.36                       4.27

15   26 SEP 76    7:13:36.1   4.63     ARGENTINA               28.1S   64.6W    135.6     0.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA     DIST     AMP      T                 MB                         MB
     PK-ON   83.0     49.3   0.70              5.26                       5.11
     OB2NV   81.2     29.4   0.67              4.84                       4.67

16   30 SEP 76    8: 4:10.9   5.21     CHILE-ARG. BORDER       24.2S   68.2W    135.7     0.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA     DIST     AMP      T                 MB                         MB
     HN-ME   70.3     43.4   1.30              5.35                       5.46
     RK-CN   78.3    183.5   1.10              5.90                       5.95
     OB2NV   76.1    198.9   1.10              5.97                       6.01

17   25 SEP 76   10:40:47.0   4.52     EASTER IS.              24.6S  106.8W    170.5     0.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA     DIST     AMP      T                 MB                         MB
     RK-ON   76.3     43.1   0.70              5.10                       4.95
     OB2NV   62.4    103.0   1.00              5.67                       5.67

18   22 SEP 76   20: 7: 1.3   5.30     N.CHINA                 39.9N  106.3E    328.7     0.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA     DIST     AMP      T                 MB                         MB
     HN-ME   93.8     19.5   0.90              5.09                       5.05        ** OMITTED **
     OB2NV   93.6     11.5   0.60              4.73                       4.51        ** OMITTED **

19   22 SEP 76    2:30:30.8   4.78     ALEUTIANS               51.6N  175.9W    309.1    75.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA     DIST     AMP      T                 MB                         MB
     HN-ME   64.3     45.8   0.60              5.08                       4.86
     RK-CN   48.6    225.8   0.40              5.55                       5.15
     OB2NV   43.7     18.1   0.80              4.38                       4.28
```

20 22 SEP 76 8:20:27.6 5.03 VOLCANO IS. 23.3N 142.1E 35.5 110.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	91.1	266.4	0.80	6.03	5.94
OB2NV	84.9	235.1	0.60	5.58	5.36

** OMITTED **

21 4 OCT 76 6:59:19.5 4.62 C.MEXICO 20.0N 99.0W 134.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	30.7	37.6	0.80	4.86	4.77
OB2NV	22.3	42.7	1.50	4.86	5.04

22 4 OCT 76 23:36: 6.0 5.17 ECUADOR 0.2S 77.5W 127.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	47.1	73.0	1.50	5.65	5.82
RK-ON	52.8	38.8	0.70	4.86	4.70
OB2NV	51.6	11.6	1.10	4.54	4.58

23 7 OCT 76 22: 1:12.5 4.60 ECUADOR 0.8S 80.3W 130.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	52.9	23.4	0.80	4.69	4.59
OB2NV	50.4	22.6	0.50	4.55	4.25

24 8 OCT 76 9:22:46.6 4.55 KORMANDORSKY IS. 55.1N 164.3E 316.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	69.6	22.2	0.70	4.93	4.77
RK-ON	55.9	27.3	0.70	4.81	4.65
OB2NV	54.7	88.0	0.80	5.36	5.27

25 8 OCT 76 9:22:56.3 4.53 KORM IS. 55.1N 164.1E 316.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	69.6	36.0	0.50	5.16	4.85
RK-ON	56.0	27.6	0.70	4.81	4.66
OB2NV	54.8	102.0	0.90	5.47	5.42

26 8 OCT 76 14:38:27.9 4.78 KURILES 49.8N 155.7E 312.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	76.8	44.4	0.70	5.19	5.03
RK-ON	63.3	24.9	0.60	4.86	4.64
OB2NV	61.4	8.7	0.90	4.54	4.49

27 23 NOV 76 5: 3: 0.0 5.20 E.KAZ 50.0N 79.0E 350.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	79.9	241.4	0.80	5.76	5.66
RK-ON	79.2	479.9	0.50	5.95	5.65

28 9 OCT 76 12:31: 6.6 4.97 COSTA RICA 10.7N 85.8W 126.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	38.5	71.6	1.00	5.01	5.01
RK-ON	40.6	43.3	0.80	4.72	4.62
OB2NV	37.9	106.7	1.20	5.36	5.44

29 9 OCT 76 2:52:24.3 4.47 KURILES 45.1N 153.5E 308.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	81.7	9.2	0.70	4.47	4.32
RK-ON	67.9	24.6	0.70	4.96	4.81
OB2NV	64.9	37.2	0.90	5.23	5.19

30 9 OCT 76 16: 2:26.9 4.54 N.COLUMBIA 9.4N 77.5W 118.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	37.7	35.8	0.70	4.69	4.54
RK-ON	43.6	34.0	0.70	4.60	4.45
OB2NV	44.5	9.6	0.80	4.20	4.10

31 9 OCT 76 19:41:27.1 4.31 S.PERU 15.2S 71.6W 132.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	68.8	23.3	0.50	4.86	4.56
OB2NV	67.0	18.2	0.60	4.79	4.57

32 9 OCT 76 21:10:24.1 4.53 PERU COAST 10.3S 79.5W 136.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	62.3	30.7	0.70	5.03	4.87
OB2NV	58.6	6.7	0.70	4.20	4.04

33 9 OCT 76 23:48: 9.0 4.39 C. AMER. COAST 10.0N 91.0W 133.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	40.9	16.8	0.70	4.29	4.13
OB2NV	35.4	7.0	0.80	4.12	4.03

34 10 OCT 76 2:58:56.6 4.91 KURILES 45.4N 151.0E 310.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	82.2	57.1	0.90	5.36	5.31
RK-ON	68.7	40.1	1.00	5.30	5.30
OB2NV	66.3	14.4	1.00	4.86	4.86

35 10 OCT 76 6:19:20.8 4.46 ECUADOR 0.4S 78.2W 128.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	52.9	40.8	0.70	4.88	4.73
OB2NV	51.4	5.4	1.10	4.20	4.25

36 10 OCT 76 14:32: 4.9 4.59 KURILES 43.2N 147.7E 309.3 45.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	71.9	20.5	0.50	4.57	4.27
OB2NV	69.4	11.4	0.90	4.52	4.47

37 6 OCT 76 9:12:36.0 5.80 ECUADOR 0.6S 78.7W 128.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	47.7	212.2	2.00	6.28	6.58
RK-CN	53.0	140.4	1.30	5.74	5.86

38 12 OCT 76 4:24:52.1 4.96 S. HONSHU, JAPAN 31.2N 141.5E 302.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	84.6	18.8	0.60	4.81	4.58
OB2NV	80.4	38.2	0.90	4.98	4.94

39 12 OCT 76 23:49:24.3 4.41 W CST COLUMBIA 2.8N 77.5W 124.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	44.1	17.9	0.60	4.42	4.20
RK-ON	49.9	68.5	0.60	5.08	4.85
OB2NV	49.3	11.0	0.70	4.38	4.23

40 13 OCT 76 17:35:45.1 4.68 VENEZUELA 10.5N 62.2W 104.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	47.8	62.7	0.60	5.23	5.01
OB2NV	55.1	15.2	0.80	4.60	4.50

41 21 OCT 76 4:24:16.0 4.62 N. CHILE 22.1S 70.0W 135.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	68.2	21.0	0.70	4.96	4.81
RK-ON	75.8	38.7	0.60	5.00	4.78
OB2NV	73.5	29.8	1.00	5.03	5.03

42 21 OCT 76 15:13:22.8 4.92 ALEUTIANS 52.3N 169.3W 309.9 53.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	44.8	18.0	0.40	4.32	3.92
OB2NV	39.6	62.0	0.70	4.89	4.73

43 22 OCT 76 4: 4:22.6 4.64 CST OF NICARAGUA 12.1N 87.6W 126.9 70.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	37.9	32.2	0.90	4.83	4.79
RK-CN	39.1	75.6	0.60	5.01	4.79
OB2NV	35.8	18.1	0.60	4.46	4.24

44 22 OCT 76 5:53:50.9 4.57 EL SALVADOR 13.2N 88.2W 126.4 79.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	37.9	58.4	0.70	4.99	4.84
OB2NV	31.6	13.1	0.80	4.40	4.31

45 22 OCT 76 18:35:23.9 5.26 KODIAK REG 56.1N 153.3W 319.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	34.8	127.0	0.50	5.30	5.00
OB2NV	31.2	80.1	1.30	5.50	5.61

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46    24 OCT 76   17:19:55.5  4.60     CEN. ALASKA             63.0N  149.0W    332.8    70.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA       DIST       AMP     T              MB                            MB
    HN-ME      46.4       33.9  0.80            4.87                          4.77
    OB2NV      32.4       30.5  0.80            4.69                          4.59

47    26 OCT 76    5:59:56.4  5.34     KURILE IS               46.1N  150.8E    310.7   130.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA       DIST       AMP     T              MB                            MB
    HN-ME      81.6       89.6  0.60            5.17                          4.95
    RK-CN      68.3      112.7  0.80            5.24                          5.14
    OB2NV      66.1       27.6  0.50            4.57                          4.27

48    28 OCT 76    9:59:21.3  4.55     PERU                    14.6S   73.7W    134.0     0.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA       DIST       AMP     T              MB                            MB
    RK-ON      67.8       28.6  0.70            5.03                          4.87
    OB2NV      65.4        9.7  0.70            4.56                          4.40

49     2 NOV 76   19:23: 2.7  4.90     KURILE IS               47.0N  151.0E    311.5     0.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA       DIST       AMP     T              MB                            MB
    HN-ME      80.8      126.4  0.70            5.52                          5.37
    OB2NV      78.2       22.5  0.90            4.89                          4.85

50    12 NOV 76   14:47:32.7  5.39     BAFFIN BAY              72.0N   70.0W     19.5    89.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA       DIST       AMP     T              MB                            MB
    HN-ME      26.1      171.6  0.70            5.19                          5.03

51    15 NOV 76   14:14:26.6  4.60     KURILES                 45.0N  148.0E    310.8   200.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA       DIST       AMP     T              MB                            MB
    HN-ME      83.0       43.1  0.50            4.79                          4.49

52    17 NOV 76    5:33:35.5  5.50     KURILES                 51.0N  156.0E    313.9   100.
                                       LOG10(A/MT) + B                LOG10(A/M) + B
     STA       DIST       AMP     T              MB                            MB
    HN-ME      75.6      408.9  0.70            5.85                          5.70
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53   22 NOV 76  20: 9: 2.7  4.50    VENEZUELA              7.0N   72.0W   115.6    0.
                                    LOG10(A/MT) + B               LOG10(A/M) + B
   STA    DIST    AMP    T               MB                            MB
  RK-CN   47.3   128.9  0.50            5.50                          5.20

54   26 NOV 76  23:43:12.6  4.80    PERU-ECUADOR BDR       2.0S   77.0W   128.1    0.
                                    LOG10(A/MT) + B               LOG10(A/M) + B
   STA    DIST    AMP    T               MB                            MB
  HN-ME   49.2    41.7  0.80            5.06                          4.97
  RK-ON   55.2    85.6  0.50            5.23                          4.92

55    1 DEC 76  14:15:33.2  5.00    COSTA RICA            10.0N   85.0W   125.9    0.
                                    LOG10(A/MT) + B               LOG10(A/M) + B
   STA    DIST    AMP    T               MB                            MB
  HN-ME   39.0   213.1  1.30            5.54                          5.65
  RK-ON   41.6    89.6  1.10            5 22                          5.26

56    1 DEC 76  17:44:33.8  4.50    CST OF CENT. AMER.    12.0N   90.0W   130.1    0.
                                    LOG10(A/MT) + B               LOG10(A/M) + B
   STA    DIST    AMP    T               MB                            MB
  RK-CN   38.7    49.8  0.70            4.70                          4.54

57    3 DEC 76   5:27:34.4  4.90    CHILE-BOLIVIA         21.0S   69.0W   134.3   79.
                                    LOG10(A/MT) + B               LOG10(A/M) + B
   STA    DIST    AMP    T               MB                            MB
  RK-CN   74.7   155.4  0.70            5.40                          5.25

58    3 DEC 76  23:10:23.1  4.60    N. CHILE              22.0S   69.0W   134.9    0.
                                    LOG10(A/MT) + B               LOG10(A/M) + B
   STA    DIST    AMP    T               MB                            MB
  RK-ON   76.5    85.6  0.80            5.45                          5.35

59   30 NOV 76   0:40:57.0  6.30    CHILE-BOLIVIA         21.0S   69.0W   134.3   63.
                                    LOG10(A/MT) + B               LOG10(A/M) + B
   STA    DIST    AMP    T               MB                            MB
  HN-ME   66.6  1102.7  0.60            6.50                          6.28
  RK-ON   74.5  4281.5  0.60            6.84                          6.61
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60    4 DEC 76   5: 6:29.7  4.70     N. CHILE                   21.0S   69.0W    134.3     0.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
    STA     DIST     AMP     T              MB                                ML
   RK-CN    74.8     62.6   0.51           5.09                              4.80
   OB2NV    72.9     62.0   0.80           5.31                              5.21

61    4 DEC 76  12:32:35.4  5.20     N. CHILE                   20.0S   69.0W    133.7   103.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
    STA     DIST     AMP     T              MB                                MB
   HN-ME    66.6     80.7   1.30           5.41                              5.53
   RK-ON    74.5    100.7   0.60           5.13                              4.91

62    5 DEC 76  22: 1:22.1  4.84     BONN IS.                   23.0N  140.0E    296.4   393.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
    STA     DIST     AMP     T              MB                                MB
   RK-CN    87.8    195.2   0.60           5.43                              5.21           ** OMITTED **

63    6 DEC 76  19:46: 2.4  4.90     EASTER IS.                 34.0S  112.0W    176.5     0.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
    STA     DIST     AMP     T              MB                                MB
   RK-CN    86.9     67.0   1.00           5.52                              5.52           ** OMITTED **

64    7 DEC 76   9:36:41.4  4.70     S. HONSHU                  34.0N  137.0E    306.7   360.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
    STA     DIST     AMP     T              MB                                MB
   RK-ON    84.3     26.9   0.80           4.61                              4.51

65    9 DEC 76   4:24: 6.4  4.30     EL SALVADOR                14.0N   90.0W    127.8     0.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
    STA     DIST     AMP     T              MB                                MB
   RK-CN    37.2    289.2   0.70           5.53                              5.38

66    9 DEC 76   9:58:19.7  4.50     OFF CST OREGON             45.0N  130.0W    311.5     0.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
    STA     DIST     AMP     T              MB                                MB
   HN-ME    42.6    149.7   0.80           5.34                              5.24
   RK-ON    25.1    133.0   0.80           5.23                              5.14
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67    9 DEC 76   15:37:41.0  4.90      KURILES                    44.0N  148.0E   309.9    85.
                                       LOG10(A/MT) + B                   LOG10(A/M) + B
    STA    DIST     AMP      T                 MB                                MB
   HN-ME   84.1     53.2   0.50               5.13                              4.83
   RK-ON   70.9    118.8   0.60               5.25                              5.03

68   20 OCT 76    8: 0: 0.0  0.0       N.Z.                       73.0N   55.0E     2.8     0.
                                       LOG10(A/MT) + B                   LOG10(A/M) + B
    STA    DIST     AMP      T                 MB                                MB
   HN-ME   54.6     59.5   0.70               5.21                              5.06
   RK-ON   54.4    274.0   0.40               5.73                              5.33
   OB2NV   69.7      6.1   0.60               4.25                              4.02

69   19 DEC 76   14:37:30.0  0.0       KURILES                    45.0N  154.0E   308.5     0.
                                       LOG10(A/MT) + B                   LOG10(A/M) + B
    STA    DIST     AMP      T                 MB                                MB
   RK-ON   67.9     44.7   0.70               5.22                              5.07

70   20 DEC 76   10:18:58.0  0.0       COLUMBIA                    7.0N   75.0W   118.4     0.
                                       LOG10(A/MT) + B                   LOG10(A/M) + B
    STA    DIST     AMP      T                 MB                                MB
   HN-ME   39.6    169.4   1.40               5.47                              5.62
   RK-ON   46.5    244.1   1.30               6.13                              6.25

71   15 DEC 76   12:26: 4.0  0.0       JAPAN                      30.0N  131.0E   307.0     0.
                                       LOG10(A/MT) + B                   LOG10(A/M) + B
    STA    DIST     AMP      T                 MB                                MB
   RK-ON   90.0     19.2   0.70               4.85                              4.70        ** OMITTED **

72   20 DEC 76   20:33:50.0  0.0       BR. COLUMBIA               55.0N  124.0W   345.6     0.
                                       LOG10(A/MT) + B                   LOG10(A/M) + B
    STA    DIST     AMP      T                 MB                                MB
   HN-ME   35.6   1160.9   1.25               6.50                              6.60
   RK-ON   18.6   3293.5   1.30               6.37                              6.49
   OB2NV   18.6    948.7   1.30               5.83                              5.95

73   20 DEC 76   21:22:25.0  0.0       BR. COLUMBIA               56.0N  124.0W   345.6     0.
                                       LOG10(A/MT) + B                   LOG10(A/M) + B
    STA    DIST     AMP      T                 MB                                MB
   HN-ME   36.0     63.0   1.00               5.10                              5.10
   RK-ON   19.0    423.1   0.90               5.29                              5.24
   OB2NV   19.0     79.1   1.30               4.70                              4.91
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74   22 DEC 76    1: 1:42.0  0.0    VOLCANO IS.              24.0N  142.0E   296.1     0.
                                    LOG10(A/MT) + B                 LOG10(A/M) + B
   STA     DIST    AMP     T             MB                               MB               ** OMITTED **
   RK-CN   91.0   385.8   1.00          6.39                             6.39              ** OMITTED **
   OB2NV   90.0   242.1   1.10          6.16                             6.20

75   13 DEC 76   23: 1:28.0  0.0    N. PACIFIC               32.0N  145.0E   300.9     0.
                                    LOG10(A/MT) + B                 LOG10(A/M) + B
   STA     DIST    AMP     T             MB                               MB
   PK-CN   82.4    68.2   0.60          5.30                             5.08

76   14 DEC 76   16: 6:56.0  0.0    JAPAN                    31.0N  130.0E   308.3     0.
                                    LOG10(A/MT) + B                 LOG10(A/M) + B
   STA     DIST    AMP     T             MB                               MB               ** OMITTED **
   RK-CN   89.5   235.4   0.80          5.99                             5.89

77   27 DEC 76   18: 8: 8.0  0.0    JAPAN                    42.0N  145.0E   309.3     0.
                                    LOG10(A/MT) + B                 LOG10(A/M) + B
   STA     DIST    AMP     T             MB                               MB
   RK-ON   74.0    36.8   0.60          4.90                             4.67
   OB2NV   55.0    19.0   0.60          4.61                             4.39

78   30 DEC 76    3:57: 0.0  0.0    E. KAZ                   50.0N   79.0E   350.4     0.
                                    LOG10(A/MT) + B                 LOG10(A/M) + B
   STA     DIST    AMP     T             MB                               MB
   RK-CN   79.2    41.3   0.60          4.93                             4.70              ** OMITTED **
   OB2NV   92.0    14.6   0.80          4.88                             4.79

79   31 DEC 76    9:16:37.0  0.0    JAPAN                    40.0N  145.0E   307.6     0.
                                    LOG10(A/MT) + B                 LOG10(A/M) + B
   STA     DIST    AMP     T             MB                               MB               ** OMITTED **
   HN-ME   88.9    53.0   1.00          5.44                             5.44
   RK-ON   75.7    49.1   0.70          5.13                             4.98
   OB2NV   72.9    25.1   1.00          5.00                             5.00

80    1 JAN 77   11:33:42.4  5.13   JAPAN                    30.6N  137.2E   303.9   483.
                                    LOG10(A/MT) + B                 LOG10(A/M) + B
   STA     DIST    AMP     T             MB                               MB               ** OMITTED **
   RK-ON   87.6   149.1   0.80          5.31                             5.21
   OB2NV   83.4    44.7   0.80          4.64                             4.54
```

```
81     7 DEC 76    4:57: 0.0   0.0      E. KAZAKH                50.0N   79.0E    350.4      0.
                                        LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP       T                 MB                              MB
 HN-ME      79.9     267.9    0.90              5.82                            5.78
 RK-CN      79.2     623.6    0.40              6.07                            5.67

82     5 JAN 77   10:37:33.6   4.76     VOLCANO IS.              25.7N  142.5E    297.1     92.
                                        LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP       T                 MB                              MB
 RK-CN      86.5      33.6    0.80              4.31                            4.81           ** OMITTED **
 OB2NV      82.3       5.9    1.00              4.13                            4.13

83     5 JAN 77   22:44:57.0   5.50     VOLCANO IS.              23.3N  143.8E    294.5      0.
                                        LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP       T                 MB                              MB
 RK-CN      90.7     169.0    0.90              5.96                            5.91           ** OMITTED **
 OB2NV      84.6     135.9    0.70              5.70                            5.55

84     6 JAN 77    7:55:55.5   5.24     KURILES                  49.3N  155.4E    312.3      0.
                                        LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP       T                 MB                              MB
 HN-ME      78.2      75.6    0.80              5.42                            5.32
 RK-CN      64.3      82.2    0.60              5.44                            5.22
 OB2NV      61.5      47.3    1.20              5.46                            5.54

85     6 JAN 77   16: 2: 3.6   5.36     ANDREANOF IS.            51.3N  175.4W    308.6      0.
                                        LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP       T                 MB                              MB
 RK-CN      49.7     227.5    0.50              5.58                            5.28
 OB2NV      44.5      36.1    0.80              4.78                            4.68

86    22 SEP 76    0:16: 9.3   6.05     KURILE IS.               44.8N  149.1E    310.2     55.
                                        LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP       T                 MB                              MB
 HN-ME      83.3     675.0    0.70              6.30                            6.15
 RK-CN      70.0    2031.1    1.10              6.81                            6.86
 OB2NV      67.7     650.3    0.90              6.27                            6.22

87    17 JAN 77    6:23:42.6   5.32     BONIN IS.                26.7N  142.6E    297.9     76.
                                        LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP       T                 MB                              MB
 RK-CN      85.6      76.8    1.00              5.34                            5.34           ** OMITTED **
 OB2NV      81.6      47.2    1.10              5.11                            5.15
```

88 17 JAN 77 9:42:22.5 4.68 S. OF ALASKA 53.6N 158.7W 313.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	36.1	52.9	0.60	4.84	4.62
OB2NV	31.6	29.9	0.80	4.79	4.70

89 24 JAN 77 6:11:30.0 4.86 KURILE IS 45.5N 150.9E 310.1 84.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	79.8	48.1	0.70	4.94	4.79
RK-CN	66.4	71.8	0.70	5.17	5.02
OB2NV	64.5	15.9	0.90	4.61	4.56

90 3 FEB 77 21:30:59.0 0.0 RUSSIA-CHINA BDR 43.0N 130.0E 317.2 0. ** OMITTED **

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	89.4	57.8	0.50	5.42	5.12
RK-CN	78.7	310.7	0.40	5.82	5.42
OB2NV	79.8	52.1	0.50	4.93	4.63

91 6 FEB 77 0:31:29.0 0.0 N. ATLANTIC 24.0N 48.0W 82.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	44.1	45.3	0.70	4.75	4.59
OB2NV	58.8	43.4	1.00	5.14	5.14

92 13 FEB 77 5:51:11.0 0.0 KAMCHATKA 52.0N 160.0E 313.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	73.5	120.4	0.60	5.58	5.35
RK-ON	59.9	149.2	0.60	5.50	5.28
OB2NV	58.1	81.3	0.70	5.28	5.13

93 16 FEB 77 0:50:18.0 0.0 N ATLANTIC OCEAN 32.0N 25.0W 63.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	36.0	34.5	0.70	4.78	4.62
PK-ON	53.0	91.9	0.90	5.32	5.28

94 16 FEB 77 1: 5:48.0 0.0 N PACIFIC OCEAN 38.0N 150.0E 303.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	75.1	21.9	0.50	4.64	4.34

95 17 FEB 77 13:32: 7.0 0.0 KORANDORFSKI 56.0N 166.0E 317.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	54.6	101.2	1.00	5.51	5.51
OB2NV	53.5	7.1	1.20	4.44	4.52

96 18 FEB 77 20:51:26.0 0.0 JAPAN 34.0N 142.0E 304.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	95.0	66.9	1.20	5.80	5.88
RK-ON	82.0	445.5	0.80	6.17	6.07
OB2NV	78.0	425.3	1.00	6.23	6.23

** OMITTED **

97 19 FEB 77 4: 1:58.0 0.0 N PACIFIC OCEAN 31.0N 147.0E 299.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	82.3	22.5	0.80	4.90	4.80
OB2NV	76.7	24.1	1.20	5.12	5.20

98 19 FEB 77 5:51: 1.0 0.0 KAMCHATKA 51.0N 156.0E 313.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	62.3	30.7	0.60	4.99	4.77
OB2NV	60.8	93.0	0.80	5.47	5.37

99 19 FEB 77 22:33:55.0 0.0 ALEUTIANS 53.0N 173.0E 312.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	68.0	700.1	0.90	6.53	6.48
RK-ON	53.3	628.2	0.60	6.06	5.84
OB2NV	50.2	232.6	1.00	5.77	5.77

100 19 FEB 77 22:47: 7.0 0.0 ALEUTIANS 49.0N 175.0E 306.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	54.8	98.0	0.60	5.32	5.10
OB2NV	49.9	21.1	0.50	4.53	4.23

101 20 FEB 77 7: 2: 0.0 0.0 KODIAK IS. REG. 56.0N 152.0W 319.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	34.1	13.3	0.70	4.39	4.24
OB2NV	30.4	5.8	0.80	4.02	3.93

102 20 FEB 77 8: 0:36.0 0.0 ALEUTIANS 51.0N 174.0E 309.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	54.1	205.4	0.70	5.68	5.53
OB2NV	50.0	6.4	0.50	4.00	3.70

103 8 MAR 77 22:46:44.0 0.0 W. BRAZIL 8.0S 63.0W 120.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	54.3	160.5	1.30	5.82	5.93
RK-CN	64.5	311.0	1.00	6.19	6.19
OB2NV	67.0	70.0	1.00	5.55	5.55

104 9 MAR 77 14:27: 5.0 0.0 N.E. CHINA BDR 42.0N 130.0E 316.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	90.4	930.1	0.70	6.65	6.49
RK-ON	79.6	5750.5	0.80	7.12	7.02
OB2NV	80.5	2887.5	0.80	6.83	6.73

** OMITTED **

105 12 MAR 77 2:58:55.0 0.0 N. ATLANTIC RIDGE 32.0N 41.0W 70.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	42.6	123.0	1.00	5.29	5.29
OB2NV	60.3	177.9	1.20	5.92	5.99

106 13 MAR 77 4:55:55.0 0.0 BRAZIL 2.0S 58.0W 112.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	49.0	56.3	1.10	5.29	5.33
RK-CN	60.9	335.6	0.70	5.99	5.83
OB2NV	66.4	144.2	0.60	5.69	5.47

107 13 MAR 77 21:15:17.0 0.0 VENEZUELA 1.0N 64.0W 114.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	45.3	57.7	0.90	5.17	5.13
RK-ON	55.8	128.2	0.80	5.53	5.43
OB2NV	60.0	152.3	0.80	5.60	5.50

```
108    15 MAR 77   21:28: 9.0  0.0      COSTA RICA               9.0N   83.0W    124.7      0.
                                        LOG10(A/MT)  + B                LOG10(A/M)  + B
     STA     DIST     AMP      T                MB                          MB
    RK-CN    42.7    193.6   0.70              5.36                        5.20
    OB2NV    41.1     55.9   0.70              4.82                        4.66

109    16 MAR 77    6:22:19.0  0.0      ALASKA PEN.             56.'N  155.0W    318.6      0.
                                        LOG10(A/MT)  + B                LOG10(A/M)  + B
     STA     DIST     AMP      T                MB                          MB
    RK-CN    35.7     17.7   0.70              4.45                        4.29
    OB2NV    32.0     13.4   0.80              4.45                        4.35

110    19 MAR 77   10:56: 6.0  0.0      KUPILES                 43.0N  149.0E    308.5      0.
                                        LOG10(A/MT)  + B                LOG10(A/M)  + B
     STA     DIST     AMP      T                MB                          MB
    HN-ME    85.0    434.7   0.70              6.28                        6.12
    RK-CN    71.5    560.7   0.70              6.22                        6.06
    OB2NV    68.7    351.9   0.80              6.16                        6.07

111     4 MAR 77   19:21:40.0  0.0      RUMANIA                 44.0N   26.0E     26.4      0.
                                        LOG10(A/MT)  + B                LOG10(A/M)  + B
     STA     DIST     AMP      T                MB                          MB
    RK-CN    71.7   1129.8   0.60              6.48                        6.26
    OB2NV    91.8    117.3   0.70              5.74                        5.58          ** OMITTED **

112     7 MAR 77    0:29:11.0  0.0      N.E. CHINA              43.0N  114.0E    325.8      0.
                                        LOG10(A/MT)  + B                LOG10(A/M)  + B
     STA     DIST     AMP      T                MB                          MB
    RK-ON    83.1     54.9   0.30              5.37                        4.84
    OB2NV    87.8      7.7   0.70              4.54                        4.38          ** OMITTED **

113     7 MAR 77    9:11:55.0  0.0      N. PACIFIC              39.0N  149.0E    304.9      0.
                                        LOG10(A/MT)  + B                LOG10(A/M)  + B
     STA     DIST     AMP      T                MB                          MB
    RK-ON    74.7     78.6   0.60              5.23                        5.00
    OB2NV    70.9    137.3   0.60              5.57                        5.35

114    21 MAR 77    4:36:38.0  0.0      VOLCANO IS.             23.0N  143.0E    294.7      0.
                                        LOG10(A/MT)  + B                LOG10(A/M)  + B
     STA     DIST     AMP      T                MB                          MB
    RK-ON    90.9      9.7   0.70              4.65                        4.49          ** OMITTED **
    OB2NV    84.4     22.3   1.00              5.05                        5.05
```

115 21 MAR 77 6:58:18.0 0.0 MARIANA IS. 21.0N 141.0E 294.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-CN	93.6	7.4	0.60	4.54	4.32	** OMITTED **
OB2NV	87.1	29.3	1.00	5.18	5.18	** OMITTED **

116 23 MAR 77 2:11:25.0 0.0 CST. VENEZUELA 11.0N 69.0W 109.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	44.7	2326.8	0.50	6.50	6.20
OB2NV	49.6	274.5	0.60	5.71	5.49

117 23 MAR 77 3:46:10.0 0.0 HOKKAIDO 45.0N 145.0E 312.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	71.6	23.2	0.70	4.84	4.68
OB2NV	70.1	12.7	0.80	4.62	4.53

118 26 MAR 77 4:36:10.0 0.0 FOX IS. 52.0N 168.0W 309.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	44.3	179.2	0.90	5.47	5.43
OB2NV	38.8	195.9	1.00	5.41	5.41

119 29 MAR 77 3:57: 0.0 0.0 E. KAZAKH 50.0N 78.0E 351.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-ON	78.9	81.7	0.40	5.22	4.82	
OB2NV	91.9	33.7	0.70	5.20	5.04	** OMITTED **

120 5 APR 77 7:34:58.1 0.0 S. PERU 15.0S 70.0W 131.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	69.1	25.7	0.60	4.93	4.71
OB2NV	67.8	64.1	0.80	5.43	5.33

121 5 APR 77 7:39:49.5 0.0 KAMCHATKA 54.3N 161.5E 316.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	57.8	11.8	0.70	4.44	4.29
OB2NV	67.8	5.5	0.60	4.27	4.05

```
122    9 APR 77   17:16: 5.5  0.0      ARGENTINA                27.9S   67.0W    137.2     0.
                                       LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP     T                 MB                               MB
   RK-CN    82.0      28.0   0.61              4.88                             4.67
   OB2NV    79.6       9.5   0.75              4.31                             4.19

123   10 APR 77    8:31:24.6  0.0      KURILES                  44.6N   147.2E   310.7     0.
                                       LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP     T                 MB                               MB
   RK-ON    71.2     104.9   0.54              5.43                             5.16
   OB2NV    69.1     135.8   0.91              5.79                             5.75
   YP-NV    69.0     445.4   0.80              6.27                             6.17

124   10 APR 77   18:45:18.1  0.0      KAMCHATKA                52.6N   158.8E   314.8   120.
                                       LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP     T                 MB                               MB
   RK-CN    60.1      13.6   0.50              4.44                             4.14
   OB2NV    58.6       5.7   0.42              3.98                             3.61

125   12 APR 77    3:54:41.7  0.0      KOMANDORSKY              56.0N   164.0E   317.5     0.
                                       LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP     T                 MB                               MB
   RK-CN    55.5      27.5   0.60              4.77                             4.55
   YP-NV    52.0      54.3   0.60              4.97                             4.74

126   13 APR 77   18:20:38.3  0.0      RAT IS.                  51.5N   179.6W   309.3     0.
                                       LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP     T                 MB                               MB
   RK-CN    50.7      50.5   0.60              4.93                             4.71
   OB2NV    46.1      95.3   0.80              5.41                             5.31

127   15 APR 77   23:35:38.9  0.0      N. CHILE                 22.9S    68.8W   135.4   109.
                                       LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP     T                 MB                               MB
   RK-ON    76.8     207.0   0.70              5.48                             5.32
   OB2NV    74.7     142.4   1.00              5.45                             5.45

128   16 APR 77    4: 2:18.2  0.0      ALEUTIANS                52.1N   170.5W   309.6     0.
                                       LOG10(A/MT)  + B                 LOG10(A/M)  + B
   STA      DIST      AMP     T                 MB                               MB
   RK-ON    45.7      27.2   0.80              4.82                             4.73
   OB2NV    40.4       8.7   0.90              4.04                             3.99
```

129 17 APR 77 2:41:10.8 0.0 CHILE-ARGENTINA 33.4S 68.8W 141.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-ON	86.9	78.4	0.90	5.55	5.5C	** OMITTED **
OB2NV	83.0	51.6	0.90	5.37	5.33	

130 20 APR 77 0:19:18.1 0.0 ALEUTIANS 51.0N 179.0W 308.5 52.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-ON	50.6	15.7	0.45	4.42	4.07	
OB2NV	45.7	6.0	0.60	3.97	3.75	

131 20 APR 77 20: 4:29.7 0.0 JAPAN 30.7N 137.5E 303.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-CN	87.0	980.2	0.82	6.62	6.53	** OMITTED **
YP-NV	83.0	824.8	0.70	6.49	6.33	

132 21 APR 77 1:45:46.9 0.0 N. PACIFIC 26.7N 142.6E 297.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-ON	88.1	83.0	1.00	5.71	5.71	** OMITTED **
OB2NV	82.5	44.8	1.00	5.30	5.30	
YP-NV	83.0	147.5	0.40	5.66	5.26	

133 22 APR 77 0:52: 5.2 0.0 KAMCHATKA 52.5N 153.8E 316.1 408.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-CN	62.2	69.9	0.60	4.69	4.47	
OB2NV	61.5	104.2	1.00	5.01	5.01	

134 23 APR 77 1:32:43.5 0.0 JAPAN 27.6N 127.0E 307.7 20.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-CN	93.9	6.0	0.70	4.47	4.32	** OMITTED **
OB2NV	92.4	7.0	1.00	4.68	4.68	** OMITTED **

135 23 APR 77 14:49: 5.7 0.0 NEW SIBERIAN IS. 75.0N 134.9E 343.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
RK-CN	50.2	49.6	0.80	5.01	4.92	
OB2NV	58.9	44.9	0.80	5.07	4.97	
YP-NV	59.0	96.9	0.80	5.40	5.31	

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136   24 APR 77  20:42:39.9  0.0     JAPAN                  40.2N  142.7E   308.8     0.
                                     LOG10(A/MT) + B               LOG10(A/M) + B
    STA     DIST     AMP    T              MB                          MB
   RK-ON    76.7    20.7  0.70            4.79                        4.63
   OB2NV    74.3     7.2  0.60            4.19                        3.97

137   25 APR 77   4: 6:59.9  0.0     E. KAZAKH              49.8N   78.3E   350.8     0.
                                     LOG10(A/MT) + B               LOG10(A/M) + B
    STA     DIST     AMP    T              MB                          MB
   RK-ON    79.3    41.8  0.48            4.88                        4.56
   OB2NV    92.2    16.1  0.70            4.90                        4.74         ** OMITTED **

138   26 APR 77  23: 6:38.0  0.0     KURILES                43.4N  148.0E   309.3     0.
                                     LOG10(A/MT) + B               LOG10(A/M) + B
    STA     DIST     AMP    T              MB                          MB
   RK-ON    71.8     8.5  1.00            4.53                        4.53
   OB2NV    69.3    29.7  0.50            4.94                        4.63

139   30 APR 77  16:22:42.7  0.0     N. ATLANTIC OCEAN      32.3N   40.4W    69.9     0.
                                     LOG10(A/MT) + B               LOG10(A/M) + B
    STA     DIST     AMP    T              MB                          MB
   RK-ON    42.9    10.7  0.60            4.06                        3.84
   OB2NV    60.7    17.0  1.00            4.80                        4.80

140   30 APR 77  16:44:15.6  0.0     ANDREANOF IS.          52.1N  173.0W   309.7   186.
                                     LOG10(A/MT) + B               LOG10(A/M) + B
    STA     DIST     AMP    T              MB                          MB
   RK-ON    47.0    41.3  0.60            4.40                        4.18
   OB2NV    41.9     7.0  0.60            3.72                        3.50

141   30 APR 77  20:31:58.0  0.0     PERU                   14.9S   75.3W   135.6    80.
                                     LOG10(A/MT) + B               LOG10(A/M) + B
    STA     DIST     AMP    T              MB                          MB
   RK-ON    67.6    53.4  0.70            5.01                        4.85
   OB2NV    64.6    28.7  0.50            4.71                        4.41

142   30 APR 77  21:49:45.5  0.0     ALEUTIANS              52.1N  173.4W   309.7    36.
                                     LOG10(A/MT) + B               LOG10(A/M) + B
    STA     DIST     AMP    T              MB                          MB
   HN-ME    63.0    41.0  0.70            5.08                        4.93
   RK-ON    47.2    93.3  0.40            5.25                        4.86
   OB2NV    42.2    56.2  0.65            4.83                        4.64
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143    1 MAY 77   0: 9: 8.0  0.0        PERU                        6.1S   77.0W    131.2    125.
                                          LOG10(A/MT) + B                    LOG10(A/M) + B
     STA      DIST     AMP      T                MB                                MB
    RK-ON     58.7    201.2   0.63              5.57                              5.37
    OB2NV     56.6     42.2   0.70              4.92                              4.77

144    5 MAY 77  22:14:35.7  0.0        HOKKAIDO                   42.1N  142.3E    310.6     52.
                                          LOG10(A/MT) + B                    LOG10(A/M) + B
     STA      DIST     AMP      T                MB                                MB
    RK-ON     75.0     63.8   0.72              5.08                              4.94
    HN-ME     88.0     38.7   0.80              5.19                              5.10          ** OMITTED **

145    6 MAY 77   3:53:37.5  0.0        KURILES                    46.0N  152.0E    310.2     70.
                                          LOG10(A/MT) + B                    LOG10(A/M) + B
     STA      DIST     AMP      T                MB                                MB
    OB2NV     65.4     47.3   0.60              5.00                              4.77
    RK-ON     67.8    174.4   0.90              5.64                              5.59
    HN-ME     80.0     78.5   0.80              5.19                              5.09
    YP-NV     65.5    141.7   0.80              5.56                              5.46

146    6 MAY 77  12:52:36.7  0.0        PERU COAST                 15.6S   74.7W    135.5      0.
                                          LOG10(A/MT) + B                    LOG10(A/M) + B
     STA      DIST     AMP      T                MB                                MB
    OB2NV     65.6     17.0   1.00              4.93                              4.93
    RK-ON     68.5     41.1   0.80              5.23                              5.14

147    6 MAY 77  20:31:56.7  0.0        CENT. AMER. COAST          11.9N   88.3W    128.0      0.
                                          LOG10(A/MT) + B                    LOG10(A/M) + B
     STA      DIST     AMP      T                MB                                MB
    RK-ON     39.2     54.7   0.70              4.71                              4.55
    OB2NV     35.5     44.4   0.40              4.79                              4.39

148    7 MAY 77   2:13:29.9  0.0        JAN MAYEN IS.              71.8N    1.3W     18.8      0.
                                          LOG10(A/MT) + B                    LOG10(A/M) + B
     STA      DIST     AMP      T                MB                                MB
    RK-ON     43.2     82.1   1.20              5.25                              5.33
    OB2NV     61.9     69.7   0.90              5.49                              5.45

149    9 MAY 77  12:19:16.1  0.0        N. CHILE                   21.9S   69.1W    135.0    120.
                                          LOG10(A/MT) + B                    LOG10(A/M) + B
     STA      DIST     AMP      T                MB                                MB
    OB2NV     73.8     36.5   1.00              4.84                              4.84
    RK-ON     75.9     25.5   0.84              4.62                              4.55
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150    9 MAY 77   15: 2:49.0  0.0     E. CHINA SEA          27.2N  126.8E   307.5   135.
                                      LOG10(A/MT) + B              LOG10(A/M) + B
     STA     DIST    AMP     T              MB                           MB
    OB2NV    92.6    27.0   1.40           5.40                         5.54         ** OMITTED **
    RK-CN    94.2    62.8   0.67           5.46                         5.28         ** OMITTED **

151   10 MAY 77    6:49:27.8  0.0     PERU-BRAZIL BDR        8.1S   74.8W   130.6     0.
                                      LOG10(A/MT) + B              LOG10(A/M) + B
     STA     DIST    AMP     T              MB                           MB
    RK-CN    61.1    10.7   0.50           4.43                         4.13
    OB2NV    59.5     7.2   0.60           4.19                         3.97

152   12 MAY 77   21:37:32.3  0.0     KURILES               50.1N  154.9E   313.3   100.
                                      LOG10(A/MT) + B              LOG10(A/M) + B
     STA     DIST    AMP     T              MB                           MB
    RK-ON    63.4   245.0   0.60           5.62                         5.40
    OB2NV    61.8    57.0   0.99           5.25                         5.25
    HN-ME    76.0   263.0   0.89           5.70                         5.65

153   12 MAY 77   11:17:52.1  0.0     N.E. CHINA            39.4N  117.8E   321.3     0.
                                      LOG10(A/MT) + B              LOG10(A/M) + B
     STA     DIST    AMP     T              MB                           MB
    OB2NV    88.8    21.7   0.70           4.93                         4.77         ** OMITTED **
    RK-ON    85.6    54.0   0.59           5.20                         4.97         ** OMITTED **

154   13 MAY 77    3: 2:38.2  0.0     MEXICO-GUATEMALA BR   16.0N   91.5W   127.4   254.
                                      LOG10(A/MT) + B              LOG10(A/M) + B
     STA     DIST    AMP     T              MB                           MB
    RK-CN    34.9    19.5   0.75           4.23                         4.11
    OB2NV    30.3    21.4   0.90           4.38                         4.34

155   13 MAY 77   13:35:14.4  0.0     N. PERU                5.5S   77.0W   130.7    12.
                                      LOG10(A/MT) + B              LOG10(A/M) + B
     STA     DIST    AMP     T              MB                           MB
    RK-ON    58.1    33.3   0.60           4.85                         4.63
    OB2NV    56.1    14.5   1.05           4.70                         4.72

156   14 MAY 77    6: 4:45.9  0.0     ECUADOR COAST          1.6N   85.1W   133.8    69.
                                      LOG10(A/MT) + B              LOG10(A/M) + B
     STA     DIST    AMP     T              MB                           MB
    RK-CN    49.8    48.8   1.60           5.44                         5.65
    OB2NV    45.6    48.0   1.80           5.44                         5.59
    OB3NV    45.6    48.4   1.80           5.44                         5.70
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157 22 JUL 77 16:48:57.6 0.0 CENT. AMER. CST. 3.9N 83.4W 129.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	45.8	21.1	1.70	5.20	5.43	
GB-NM	39.4	30.6	1.50	4.89	5.06	

158 22 JUL 77 17:16:57.1 0.0 KERMADEC IS. 33.4S 179.9W 228.7 153.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	93.1	62.2	0.60	5.32	5.10	** OMITTED **
GB-NM	97.4	15.6	2.00	5.62	5.92	** OMITTED **

159 23 JUL 77 13:45: 1.3 0.0 ALASKA PEN. 54.5N 162.4W 314.1 60.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	35.7	55.3	0.91	5.08	5.04	
OB3NV	35.7	49.2	0.94	5.04	5.01	
FA-NV	34.7	21.0	0.80	4.62	4.53	
GB-NM	41.2	12.0	0.70	4.21	4.05	

160 24 JUL 77 5:44:59.3 0.0 VENEZUELA CST. 11.7N 68.8W 108.3 85.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	49.3	9.7	0.66	4.25	4.07	
OB3NV	49.3	9.9	0.65	4.25	4.07	
FA-NV	49.9	7.9	0.80	4.22	4.12	
GB-NM	42.6	27.0	0.70	4.54	4.38	

161 24 JUL 77 6:23:18.2 0.0 TONGA IS. 15.2S 173.6W 237.5 260.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
YF-NV	75.2	200.5	1.22	5.65	5.74	
RK-ON	95.5	50.2	1.50	5.69	5.87	** OMITTED **
YF2NV	75.2	244.0	1.35	5.81	5.94	
OB2NV	75.3	72.9	1.80	5.50	5.75	
OB3NV	75.3	74.4	1.80	5.51	5.76	
FA-NV	75.9	125.0	2.30	6.02	6.38	
GB-NM	81.2	128.2	1.80	5.80	6.06	

162 24 JUL 77 16:19:50.1 0.0 N. ATLANTIC 17.8N 46.1W 87.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	63.6	7.6	1.30	4.74	4.85	
OB3NV	63.6	8.0	1.30	4.76	4.87	
FA-NV	63.6	5.9	0.50	4.22	3.92	
GB-NM	56.5	11.4	0.80	4.48	4.38	

163 25 JUL 77 0: 5:55.3 0.0 SAKHALIN IS. 51.7N 142.9E 318.8 45.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	67.6	10.0	1.30	4.73	4.85	
FA-NV	66.5	11.0	1.80	5.04	5.30	
GB-NM	72.5	9.0	1.20	4.55	4.63	

164 25 JUL 77 12:59:45.4 0.0 FIJI IS 25.6S 178.9E 235.1 697.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	87.6	21.5	0.80	4.36	4.26	** OMITTED **
OB3NV	87.6	20.4	0.80	4.33	4.24	** OMITTED **
FA-NV	88.3	5.5	0.70	3.75	3.59	** OMITTED **
GB-NM	93.3	6.0	1.40	4.46	4.61	** OMITTED **

165 25 JUL 77 17: 5: 3.1 0.0 PERU 11.7S 75.1W 133.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	63.3	13.1	1.30	4.94	5.06	
GB-NM	57.0	11.4	1.00	4.56	4.56	

166 26 JUL 77 4:25:23.0 0.0 JAPAN 39.8N 141.1E 309.2 143.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	75.4	43.4	0.88	4.85	4.79	
OB3NV	75.4	46.1	0.66	4.77	4.59	
FA-NV	74.4	21.4	0.90	4.55	4.50	
GB-NM	81.1	39.8	0.80	4.78	4.68	

167 26 JUL 77 7:43: 5.8 0.0 CHILE-ARGENTINA BDR 31.1S 70.2W 141.4 125.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	80.6	21.7	0.81	4.53	4.44	
OB3NV	80.6	19.9	0.80	4.49	4.40	
FA-NV	81.8	26.2	0.70	4.56	4.41	
GB-NM	76.1	26.3	0.90	4.66	4.61	

168 26 JUL 77 10:28: 0.0 0.0 SAMOA IS 16.9S 171.9W 235.1 43.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	75.4	16.6	1.08	4.71	4.75	
OB3NV	75.4	13.9	0.92	4.55	4.51	
FA-NV	76.1	27.6	0.70	4.78	4.63	
GB-NM	81.1	10.0	1.20	4.56	4.63	

169   26 JUL 77   16:59:59.9   0.0   SIBERIA   69.4N   90.4E   350.5   0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) B MB
OB2NV	71.6	20.9	0.96	4.90	4.89
OB3NV	71.6	29.5	0.78	4.98	4.87
PA-NV	70.2	22.8	1.00	4.96	4.96
GB-NM	73.1	35.3	0.70	5.01	4.85

170   27 JUL 77   2:55: 4.4   0.0   TONGA IS.   16.8S   173.5W   236.3   0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	76.4	25.0	1.00	5.00	5.00
OB3NV	76.4	24.3	1.10	5.06	5.10
PA-NV	77.1	26.0	1.00	5.02	5.02
GB-NM	82.2	30.4	1.10	5.17	5.22

171   29 JUL 77   9:50:29.0   0.0   PACIFIC OCEAN   1.5N   107.0W   164.7   0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	38.1	12.0	1.00	4.27	4.27
GB-NM	35.2	12.9	0.80	4.41	4.31

172   29 JUL 77   16:51:10.6   0.0   TONGA IS.   19.2S   175.2W   235.8   145.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	79.2	35.0	0.80	4.72	4.62
OB3NV	79.2	34.1	0.72	4.67	4.53
PA-NV	79.9	24.0	0.70	4.51	4.35
GB-NM	85.0	19.1	1.10	4.66	4.70

173   30 JUL 77   1:56:59.9   0.0   E. KAZAKH   49.7N   78.2E   350.8   0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
PA-NV	90.7	12.0	0.70	4.72	4.56	** OMITTED **
GB-NM	93.5	19.6	0.80	5.06	4.96	** OMITTED **

174   30 JUL 77   5:22:16.3   0.0   N. PERU   5.6S   77.3W   131.1   0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	56.0	12.6	1.10	4.67	4.71
OB3NV	56.0	13.1	1.12	4.70	4.75
PA-NV	57.0	18.4	1.30	4.96	5.07
GB-NM	50.7	50.0	0.80	5.02	4.92

175 30 JUL 77 5:45:49.1 0.0 CHILE COAST 30.6S 71.4W 141.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	79.6	38.6	1.05	5.06	5.08	
OB3NV	79.6	41.4	1.05	5.09	5.12	
PA-NV	80.8	28.8	0.80	4.86	4.76	
GB-NM	75.2	54.2	1.00	5.26	5.26	

176 30 JUL 77 7:56:36.4 0.0 EL SALVADOR 13.2N 88.5W 126.8 55.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	34.4	14.0	0.81	4.44	4.34	
OB3NV	34.4	13.6	0.71	4.38	4.23	
PA-NV	35.3	25.2	0.70	4.66	4.50	
GB-NM	28.9	31.8	0.80	4.61	4.51	

177 31 JUL 77 2:41:33.3 0.0 FIGI IS. 19.4S 176.2E 241.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
PA-NV	85.8	11.5	1.70	5.07	5.30	** OMITTED **
GB-NM	91.3	10.8	1.10	4.90	4.95	** OMITTED **

A-27

178 31 JUL 77 22:10:47.9 0.0 NEW HEBRIDES 15.0S 168.1E 249.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
PA-NV	88.5	8.5	1.70	5.07	5.30	** OMITTED **
GB-NM	94.7	27.1	0.60	5.13	4.91	** OMITTED **

179 25 MAY 77 12: 9:58.4 0.0 FIJI IS. 17.3S 178.8W 239.6 526.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
YP-NV	80.3	310.0	1.00	5.41	5.41	
YP2NV	80.3	361.0	1.00	5.48	5.48	
OB2NV	80.3	163.0	1.20	5.27	5.35	
OB3NV	80.3	177.0	1.20	5.31	5.38	

180 29 MAY 77 2:57: 0.4 0.0 E. KAZAKH 49.9N 78.9E 350.4 5.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
GB-NM	93.2	76.6	0.70	5.63	5.48	** OMITTED **
YP-NV	92.0	189.0	1.00	6.08	6.08	** OMITTED **
YP2NV	92.0	218.0	1.00	6.14	6.14	** OMITTED **
RK-ON	79.0	584.2	0.50	6.05	5.75	
OB2NV	91.9	95.9	0.90	5.74	5.70	** OMITTED **
OB3NV	91.9	93.7	0.80	5.69	5.59	** OMITTED **
HN-ME	79.7	204.3	1.00	5.73	5.73	

181 29 MAY 77 2:22: 1.7 0.0 COAST W. PAKISTAN 23.4N 64.6E 359.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
YP-NV	119.5	843.0	0.40	5.72	5.32	** OMITTED **
YP2NV	119.5	836.0	0.40	5.71	5.32	** OMITTED **
OB2NV	119.3	60.1	0.60	4.61	4.39	** OMITTED **
OB3NV	119.3	60.5	0.70	4.65	4.50	** OMITTED **

182 2 JUN 77 14:55:33.1 0.0 ICELAND 63.6N 19.1W 30.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
GB-NM	56.8	42.6	1.30	5.32	5.44
RK-ON	39.7	38.4	1.40	4.93	5.08
OB2NV	60.0	22.7	1.60	5.20	5.41
OB3NV	60.0	22.1	0.60	4.67	4.45

183 2 JUN 77 16:50:36.1 0.0 CHILE-BOLIVIA BORDER 20.9S 68.6W 133.9 94.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
GB-NM	68.1	58.5	0.90	5.05	5.01
YP4NV	73.2	168.5	1.00	5.54	5.54
YP3NV	73.2	126.0	1.00	5.42	5.42
YP-NV	73.2	169.0	1.00	5.55	5.55
YP2NV	73.2	121.3	1.00	5.40	5.40
OB2NV	73.3	122.0	0.90	5.36	5.32
RK-ON	75.0	128.4	0.80	5.34	5.24
OB3NV	73.3	99.0	1.00	5.31	5.31

184 5 JUN 77 2:46: 6.8 0.0 NEAR COAST N. CHILE 24.0S 70.5W 137.3 30.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	75.9	93.8	0.50	5.27	4.97
GB-NM	69.9	75.8	1.50	5.70	5.87
YP4NV	74.6	126.0	1.00	5.54	5.54
YP3NV	74.6	132.0	1.10	5.63	5.67
YP-NV	74.6	110.0	1.20	5.62	5.70
YP2NV	74.6	129.0	1.20	5.69	5.77
RK-ON	77.6	140.8	1.50	5.96	6.13
HN-ME	70.2	93.0	2.30	5.93	6.29
OB2NV	74.7	68.0	1.60	5.62	5.82
OB3NV	74.7	66.5	1.50	5.56	5.74

185 5 JUN 77 6:41:17.9 0.0 HOKKAIDO, JAPAN 42.4N 142.8E 310.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	71.8	8.2	0.50	4.31	4.00
GB-NM	78.4	20.6	1.00	4.88	4.88
YP4NV	73.0	75.0	0.70	5.35	5.19
YP3NV	73.0	60.0	0.60	5.21	4.99
YP-NV	73.0	61.0	0.60	5.22	4.99
YP2NV	73.0	60.0	0.70	5.25	5.09
RK-ON	74.6	24.1	0.60	4.71	4.49
OB2NV	72.9	20.0	0.70	4.77	4.62
OB3NV	72.9	20.6	0.70	4.78	4.63

186 5 JUN 77 15:19:13.0 0.0 NEW BRITAIN 4.6S 152.2E 267.4 123.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	94.1	58.5	1.00	5.60	5.60	** OMITTED **
GB-NM	101.2	40.4	0.80	5.62	5.53	** OMITTED **
YP4NV	94.2	320.0	0.90	6.30	6.26	** OMITTED **
YP-NV	94.2	261.0	0.80	6.17	6.07	** OMITTED **
YP2NV	94.2	308.0	0.80	6.24	6.15	** OMITTED **
HN-ME	125.8	43.0	1.10	4.67	4.72	** OMITTED **
OB2NV	94.1	133.0	0.90	5.92	5.87	** OMITTED **
OB3NV	94.1	123.0	0.90	5.88	5.84	** OMITTED **

187 8 JUN 77 13:25:16.0 0.0 CHILE-BOLIVIA BORDER 22.1S 67.3W 133.7 135.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	76.1	228.6	1.30	5.82	5.93
GB-NM	69.8	181.8	1.30	5.72	5.83
YP-NV	74.8	430.0	1.00	5.90	5.90
YP2NV	74.8	537.0	1.10	6.07	6.11
HN-ME	68.3	80.1	1.20	5.25	5.32
OB2NV	75.0	244.0	1.20	5.79	5.87
YP4NV	74.8	408.0	1.40	6.12	6.27
YP3NV	74.8	550.0	1.30	6.20	6.31

188 8 JUN 77 14:25:49.0 0.0 NEAR E COAST HONSHU 38.5N 141.5E 308.0 83.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	75.0	150.0	1.50	5.81	5.99
YP-NV	76.1	400.0	1.30	6.15	6.26
YP2NV	76.1	545.0	1.20	6.22	6.30
OB2NV	76.0	164.0	1.10	5.64	5.68
OB3NV	76.0	150.0	1.20	5.66	5.74
YP4NV	76.1	449.0	1.10	6.07	6.12
YP3NV	76.1	487.0	1.20	6.17	6.25

189 17 JUN 77 2:29:22.3 0.0 FIJI ISLANDS 19.7S 179.2W 238.1 774.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	82.9	276.9	0.80	5.36	5.26	
YP4NV	82.2	828.0	0.90	5.88	5.83	
YP3NV	82.2	651.0	1.00	5.81	5.81	
YP-NV	82.2	773.0	1.10	5.96	6.00	
YP2NV	82.2	723.0	1.20	5.99	6.07	
OB2NV	82.2	382.0	0.90	5.54	5.50	

190 17 JUN 77 14:45:11.5 0.0 MAPIANA ISLANDS 19.1N 145.8E 290.0 107.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	84.1	107.7	0.60	5.25	5.03	
YP-NV	84.8	493.0	1.30	6.27	6.39	
YP2NV	84.8	549.0	1.10	6.20	6.24	
OB2NV	84.7	204.0	0.90	5.66	5.61	
OB3NV	84.7	213.0	1.00	5.72	5.72	

191 14 JUL 77 7:15:35.0 0.0 ICELAND 64.7N 17.1W 29.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	59.2	14.9	2.00	5.18	5.49	
GB-NM	57.3	19.8	1.30	4.99	5.11	
OB2NV	60.4	7.4	1.30	4.60	4.72	
RK-ON	40.2	19.6	0.90	4.37	4.33	
OB3NV	60.4	7.5	1.20	4.55	4.63	

192 21 JUL 77 7: 1:39.3 0.0 NEW HEBPIDES IS. 18.5S 168.5E 246.7 397.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
YP-NV	90.1	54.0	1.00	5.05	5.05	** OMITTED **
OB2NV	90.1	20.0	1.00	4.61	4.61	** OMITTED **
OB3NV	90.1	21.0	1.00	4.64	4.64	** OMITTED **
YP2NV	90.1	50.0	1.00	5.01	5.01	** OMITTED **

193 24 JUL 77 19:55:38.9 0.0 MARIANA ISLANDS 19.4N 144.9E 290.8 438.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
YP-NV	85.3	405.0	0.65	5.68	5.49	** OMITTED **
YP4NV	85.3	565.0	0.80	5.89	5.80	** OMITTED **
RK-ON	93.0	16.0	1.00	4.71	4.71	** OMITTED **
OB2NV	85.0	329.3	0.70	5.61	5.46	
YP3NV	85.3	461.0	0.70	5.76	5.60	** OMITTED **
YP2NV	85.3	552.0	0.70	5.84	5.68	** OMITTED **
FA-NV	84.6	116.1	0.60	5.09	4.87	
GB-NM	91.9	141.0	1.00	5.58	5.58	** OMITTED **

194 25 JUL 77 4:51:37.7 0.0 CARIBBEAN SEA 17.8N 81.6W 112.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
YP-NV	35.8	74.0	0.95	5.17	5.15
YP4NV	35.8	63.8	0.80	5.04	4.95
RK-ON	34.4	95.2	1.40	5.63	5.77
OB2NV	36.0	39.8	0.95	4.88	4.86
OB3NV	36.0	40.0	0.90	4.86	4.82
YP3NV	35.8	92.7	1.20	5.42	5.50
YP2NV	35.8	67.0	1.10	5.22	5.26
PA-NV	36.6	20.7	0.80	4.47	4.38
GB-NM	29.4	18.0	1.30	4.75	4.86

195 27 JUL 77 17:16:58.8 0.0 MARIANA ISLANDS 21.8N 143.0E 293.8 219.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
YP-NV	85.2	276.9	0.50	5.47	5.17	** OMITTED **
YP4NV	85.2	413.9	0.70	5.72	5.57	** OMITTED **
YP3NV	85.2	323.0	0.70	5.61	5.46	** OMITTED **
YP2NV	85.2	369.0	0.60	5.63	5.41	** OMITTED **

196 29 JUL 77 11:15:47.3 0.0 SOLOMON ISLANDS 8.0S 155.6E 252.7 31.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
YP-NV	93.5	465.0	1.00	6.52	6.52	** OMITTED **
YP4NV	93.5	577.6	1.10	6.68	6.72	** OMITTED **
OB2NV	93.5	177.0	1.50	6.40	6.57	** OMITTED **
OB3NV	93.5	177.0	1.40	6.35	6.49	** OMITTED **
HN-ME	126.6	424.0	1.10	5.67	5.71	** OMITTED **
YP2NV	93.5	646.0	1.10	6.73	6.77	** OMITTED **
YP3NV	93.5	600.0	1.00	6.63	6.63	** OMITTED **
PA-NV	93.5	287.8	1.50	6.61	6.79	** OMITTED **
GB-NM	100.5	16.4	1.50	5.58	5.76	** OMITTED **

197 30 MAY 77 10:20: 2.8 0.0 OFF CST C. AMERICA 5.9N 86.2W 131.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
GB-NM	36.3	13.0	1.30	4.58	4.69
YP-NV	41.3	43.9	1.30	5.04	5.15
YP2NV	41.3	51.5	1.30	5.11	5.22
YP4NV	41.3	46.9	1.30	5.07	5.18
YP3NV	41.3	43.8	1.40	5.09	5.24
OB2NV	41.5	18.7	1.40	4.72	4.87
OB3NV	41.5	19.0	1.40	4.73	4.87

198 30 MAY 77 15:16: 5.1 0.0 FOX IS. ALEUTIANS 52.3N 169.7W 309.9 50.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
GB-NM	45.6	80.6	1.00	5.27	5.27
YP-NV	40.0	51.9	0.60	4.75	4.52
YP2NV	40.0	52.9	0.50	4.72	4.41
YP4NV	40.0	65.9	0.80	4.94	4.84
YP3NV	40.0	59.0	0.90	4.93	4.89
OB2NV	39.9	29.0	1.00	4.67	4.67
OB3NV	39.9	25.4	1.30	4.80	4.92
RK-ON	45.0	288.9	1.00	5.76	5.76
HN-ME	61.0	68.0	1.10	5.42	5.46

199 28 JAN 77 4:24:26.0 0.0 BONIN ISLANDS 29.0N 139.0E 301.7 0.

** OMITTED **

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-CN	87.8	23.1	0.50	4.94	4.64
OB2NV	83.6	38.5	0.70	5.16	5.00

200 15 JUL 77 6:16:30.5 0.0 RAT IS. ALEUTIANS 51.5N 178.0E 309.6 54.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	47.5	8.7	0.60	4.21	3.99
RK-CN	51.8	44.9	0.50	4.90	4.60
OB3NV	47.5	8.5	0.80	4.29	4.19

201 4 JUN 77 15: 0:38.8 0.0 LAKE BAIKAL REG. 56.3N 111.5E 335.2 60.

** OMITTED **

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	78.1	8.4	1.10	4.41	4.45
OB3NV	78.1	9.2	1.20	4.52	4.59
PA-NV	76.8	5.5	1.30	4.35	4.47
GB-NM	89.9	28.8	0.80	5.02	4.92

202 4 JUN 77 18:54:20.7 0.0 LEEWARD IS. 18.2N 64.0W 97.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	49.5	14.5	0.70	4.48	4.33
GB-NM	42.1	15.4	1.00	4.39	4.39

203 5 JUN 77 6:38: 3.5 0.0 ARGENTINA 23.8S 66.6W 134.3 230.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	76.7	35.4	1.00	4.75	4.75
OB3NV	76.7	32.6	1.06	4.76	4.78
PA-NV	77.8	39.5	0.70	4.67	4.51
GB-NM	71.6	45.5	0.80	4.78	4.68

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204    5 JUN 77  22:23:39.0  0.0     N. ATLANTIC RIDGE     13.4N   44.7W    90.2     0.

                                     LOG10(A/MT) + B               LOG10(A/M) + B
     STA     DIST     AMP     T                MB                            MB
    OB2NV    67.2     8.5   1.30              4.82                          4.94
    FA-NV    67.3     6.8   0.70              4.40                          4.25
    GB-NM    60.1    13.7   1.00              4.65                          4.65

205    6 JUN 77   6:38:43.1  0.0     DOMINICAN REP.        19.4N   69.5W   100.3    11.

                                     LOG10(A/MT) + B               LOG10(A/M) + B
     STA     DIST     AMP     T                MB                            MB
    FA-NV    44.6    30.0   1.00              4.79                          4.79
    GB-NM    37.2    11.9   0.70              4.17                          4.01
    OB2NV    44.1    33.1   1.00              4.74                          4.74
    OB3NV    44.1    31.0   1.20              4.84                          4.92

206    7 JUN 77  13:31:25.4  0.0     ARGENTINA             29.8S   67.8W   138.9   109.

                                     LOG10(A/MT) + B               LOG10(A/M) + B
     STA     DIST     AMP     T                MB                            MB
    FA-NV    82.0    44.2   1.00              4.94                          4.94
    GB-NM    76.1    60.6   1.00              5.07                          5.07
    OB2NV    80.8    39.4   1.10              4.96                          5.00
    OB3NV    80.8    46.3   1.00              4.96                          4.96

207    8 JUN 77   1:44:39.0  0.0     N. PERU COAST          9.1S   78.9W   135.1     0.

                                     LOG10(A/MT) + B               LOG10(A/M) + B
     STA     DIST     AMP     T                MB                            MB
    FA-NV    59.0     6.3   0.70              4.17                          4.01
    GB-NM    52.9     8.2   1.10              4.39                          4.43

208    8 JUN 77  14: 5:43.7  0.0     FIJI IS.              21.9S  177.1W   235.2   248.

                                     LOG10(A/MT) + B               LOG10(A/M) + B
     STA     DIST     AMP     T                MB                            MB
    FA-NV    83.1    57.1   0.80              4.92                          4.83
    GB-NM    88.1    10.1   1.00              4.36                          4.36      ** OMITTED **

209   28 JUL 77   2:51:47.4  0.0     MEXICO                14.5N   96.9W   137.8     0.

                                     LOG10(A/MT) + B               LOG10(A/M) + B
     STA     DIST     AMP     T                MB                            MB
    FA-NV    29.5     4.4   1.30              4.14                          4.25
    GB-NM    24.0    51.3   0.70              4.58                          4.43
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210 1 JUN 77 8:57:28.0 0.0 TONGA IS. 21.1S 174.2W 233.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
GB-NM	56.2	17.3	1.60	5.08	5.29	
OB2NV	79.9	29.7	1.04	4.91	4.93	
OB3NV	79.9	26.2	1.16	4.94	5.00	

211 1 JUN 77 12:54:53.5 0.0 TURKEY 36.3N 31.4E 26.3 88.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
GB-NM	97.5	19.2	0.80	5.22	5.12	** OMITTED **
OB2NV	100.5	7.3	0.76	4.86	4.74	** OMITTED **
OB3NV	100.5	6.7	0.88	4.87	4.82	** OMITTED **
RK-ON	80.4	129.8	0.70	5.30	5.15	

212 11 JUN 77 20:33:28.4 0.0 N. ATLANTIC RIDGE 33.9N 39.0W 67.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	60.9	15.4	1.50	5.08	5.25
OB3NV	60.9	12.9	1.70	5.09	5.32
RK-ON	42.6	22.3	1.60	4.89	5.10

213 12 JUN 77 8:48: 5.1 0.0 JAPAN 43.0N 142.3E 311.4 241.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	71.8	35.0	0.80	4.66	4.57
GB-NM	78.3	75.0	0.80	5.01	4.91
YP-NV	73.0	181.0	0.81	5.38	5.29
YP3NV	73.0	208.0	0.83	5.45	5.37
OB2NV	72.8	64.4	0.85	4.95	4.88
OB3NV	72.8	58.0	0.85	4.90	4.83
RK-ON	74.3	64.7	0.66	4.86	4.68

214 12 JUN 77 12: 0:28.3 0.0 GULF OF MEX. 22.0N 88.0W 113.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	29.3	18.0	1.00	4.56	4.56
GB-NM	22.2	10.5	0.90	3.90	3.86
OB2NV	28.6	8.3	0.66	4.07	3.89
OB3NV	28.6	9.0	0.60	4.08	3.86

215 12 JUN 77 12:16:45.8 0.0 NEW HEBRIDES 19.9S 169.4E 245.? 49.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	90.8	15.0	1.00	4.91	4.91	** OMITTED **
OB2NV	90.3	24.6	0.76	4.97	4.85	** OMITTED **
OB3NV	90.3	24.7	0.53	4.88	4.60	** OMITTED **

216 13 JUN 77 5:28:32.2 0.0 CENT. AMER. CST. 12.7N 90.5W 130.0 95.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	34.5	43.9	1.00	5.00	5.00
GB-NM	28.3	48.2	0.70	4.66	4.51
OB2NV	33.5	13.8	1.40	4.69	4.84
OB3NV	33.5	14.4	1.40	4.71	4.86
RK-ON	38.2	55.3	0.80	5.05	4.95

217 13 JUN 77 8: 2:13.4 0.0 N. CHILE CST. 22.2S 70.0W 135.8 105.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	74.7	66.7	0.80	5.04	4.94
GB-NM	68.6	48.2	0.70	4.85	4.69
OB2NV	73.5	19.1	0.90	4.54	4.49
OB3NV	73.5	21.4	1.16	4.74	4.80
RK-ON	75.9	47.0	0.85	4.91	4.84

218 13 JUN 77 10: 8:44.3 0.0 TONGA IS. 18.3S 174.2W 235.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	78.6	183.3	2.00	6.32	6.62
GB-KM	83.7	74.2	1.30	5.76	5.88
YP-NV	77.9	91.0	1.23	5.71	5.80
YF2NV	77.9	99.0	1.20	5.73	5.81
OB2NV	77.9	48.0	1.50	5.58	5.76
OB3NV	77.9	46.0	1.50	5.56	5.74

219 13 JUN 77 15:12:52.4 0.0 KODIAK IS. 57.3N 154.9W 320.9 44.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	31.2	19.5	0.90	4.56	4.52
GB-NM	37.4	41.9	0.70	4.78	4.63
OB2NV	32.4	8.4	0.90	4.21	4.17
OB3NV	32.4	7.2	0.80	4.11	4.01

220 19 JUN 77 17: 5:21.6 0.0 MEXICO 14.9N 93.3W 131.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	31.1	29.5	0.80	4.79	4.69
GB-NM	25.1	114.5	0.80	5.17	5.07
OB2NV	30.1	9.4	0.90	4.24	4.20
OB3NV	30.1	8.8	1.10	4.33	4.37

221 19 JUN 77 18:17:37.5 0.0 N. ATLANTIC RIDGE 15.5N 46.7W 89.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) B MB
FA-NV	64.5	33.3	0.70	5.09	[illegible]
GB-NM	57.3	21.5	1.50	5.13	5.31
OB2NV	64.4	24.0	1.45	5.36	5.52
OB3NV	64.4	24.2	1.50	5.38	5.56
RK-CN	51.5	37.4	1.00	4.97	4.97

222 20 JUN 77 0:41:13.9 0.0 UNIMAK IS. 53.9N 164.4W 312.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	35.8	52.9	0.70	4.91	4.76
OB2NV	36.8	39.0	0.90	4.77	4.73
OB3NV	36.8	36.9	0.90	4.75	4.70

223 20 JUN 77 6:30:54.4 0.0 N. CHILE 23.8S 69.4W 136.4 80.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	76.3	15.3	0.60	4.37	4.15
OB2NV	75.2	8.0	0.88	4.20	4.14
OB3NV	75.2	9.7	0.96	4.32	4.30

224 14 MAY 77 6:58:51.8 0.0 ECUADOR CST. 1.8N 85.4W 134.0 28.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	49.5	32.1	0.89	4.90	4.85
OB2NV	45.3	11.8	0.80	4.36	4.27
OB3NV	45.3	11.1	0.90	4.38	4.33

225 15 MAY 77 0:21: 4.1 0.0 KURILES 49.9N 152.8E 313.7 232.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	64.5	170.3	0.80	5.35	5.25
OB2NV	63.1	33.6	0.80	4.62	4.52
OB3NV	63.1	39.1	0.90	4.72	4.68
HN-ME	78.0	306.4	0.70	5.63	5.47

226 15 MAY 77 15:50:44.1 0.0 FOX IS. 52.5N 168.2W 310.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	44.1	34.6	0.50	4.55	4.25
OB2NV	35.5	56.1	1.32	5.30	5.43
OB3NV	35.5	54.7	1.25	5.25	5.35

227 21 JUN 77 8:58:22.3 0.0 TONGA IS. 15.5S 174.8W 238.2 308.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	76.9	52.3	0.80	4.84	4.74
YP-NV	76.3	91.1	0.97	5.15	5.13
YP2NV	76.3	102.0	0.97	5.20	5.18
OB2NV	76.3	276.0	0.85	5.58	5.51
OB3NV	76.3	519.0	0.95	5.90	5.87

228 22 JUN 77 7:11:30.2 0.0 JAPAN 35.4N 140.4E 306.0 44.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	77.6	28.2	1.50	5.22	5.39
YP-NV	78.7	44.9	0.75	4.98	4.85
YP2NV	78.7	52.9	0.75	5.05	4.92
OB2NV	78.5	102.0	0.78	5.36	5.25
OB3NV	78.5	160.0	0.80	5.56	5.47
RK-CN	81.5	23.0	1.10	4.87	4.91

229 22 JUN 77 8:50:31.2 0.0 KAMCHATKA 53.7N 160.7E 315.6 40.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	56.0	55.3	1.30	5.44	5.55
YP-NV	57.2	99.3	0.95	5.48	5.46
YP2NV	57.2	113.7	1.06	5.60	5.63
OB2NV	57.1	75.7	1.23	5.53	5.62
OB3NV	57.1	135.5	1.26	5.80	5.90
RK-CN	58.4	72.2	0.74	5.25	5.12

230 19 JUL 77 6:35:35.7 0.0 CHILE-ARGENTINA BDR 29.1S 69.7W 139.8 104.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	79.3	22.4	1.10	4.72	4.76
OB3NV	79.3	19.5	1.10	4.66	4.70
RK-CN	82.7	32.7	1.00	4.88	4.88

231 19 JUL 77 13: 4: 8.9 0.0 N. COLUMBIA 7.9N 72.1W 114.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	49.4	9.6	0.64	4.29	4.09
OB3NV	49.4	7.9	0.60	4.19	3.97

232 20 JUL 77 13:24:21.1 0.0 ALASKA PEN. 50.6N 161.9W 307.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
OB2NV	35.5	134.1	1.30	5.67	5.79	
OB3NV	35.5	129.0	1.40	5.71	5.83	
RK-CN	39.8	235.4	1.10	5.54	5.58	
HN-ME	55.9	84.6	1.20	5.50	5.58	

233 20 JUL 77 10:36:28.0 0.0 ANDREANOF IS. 50.1N 178.0W 307.2 207.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	44.3	10.4	0.60	3.74	3.52	
GB-FM	51.1	29.8	0.70	4.34	4.18	
YF4NV	45.3	38.8	0.70	4.35	4.20	
YF3NV	45.3	38.1	0.90	4.44	4.39	
YF-NV	45.3	30.1	0.80	4.29	4.19	
YF2NV	45.3	39.6	0.80	4.41	4.31	
OB2NV	45.2	9.9	0.90	3.85	3.80	
OB3NV	45.2	15.7	0.50	3.88	3.58	

234 21 JUL 77 2:19:59.2 0.0 ALASKA PEN. 56.2N 157.9W 318.0 33.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	32.5	20.7	0.60	4.50	4.27	
GB-NM	38.8	61.6	1.00	5.00	5.00	
OB2NV	33.6	16.0	0.90	4.53	4.49	
OB3NV	33.6	20.6	0.90	4.64	4.60	

235 10 JUN 77 0:41: 8.4 0.0 N.E. CHINA 39.6N 118.1E 321.2 103.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	87.3	6.0	1.50	4.57	4.75	** OMITTED **
GB-NM	93.0	8.0	0.80	4.62	4.52	** OMITTED **

236 10 JUN 77 2:35:18.6 0.0 SUMATRA 2.9S 101.5E 305.6 52.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	130.4	17.0	0.50	4.02	3.72	** OMITTED **
GB-NM	137.1	13.3	0.80	4.04	3.94	** OMITTED **

237 13 JUN 77 3: 5:33.5 0.0 MEXICO CST 8.6N 103.7W 155.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB	
FA-NV	32.1	17.1	1.80	5.07	5.32	
GB-NM	28.3	19.2	1.00	4.58	4.58	

238 14 JUN 77 12:52:37.4 0.0 ARGENTINA 24.9S 66.0W 134.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	79.0	29.9	0.50	4.77	4.47
GB-NM	72.8	15.3	0.70	4.65	4.50

239 15 JUN 77 13:18: 6.9 0.0 CENT. PACIFIC 5.1N 99.2W 150.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	36.9	61.0	0.70	4.87	4.71
GB-NM	32.4	78.3	1.00	5.29	5.29
OB2NV	35.6	13.0	1.00	4.46	4.46
OB3NV	35.6	14.0	0.90	4.45	4.40

240 17 JUN 77 8:26:30.3 0.0 S. ALASKA 61.5N 150.5W 329.7 64.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	31.0	15.1	0.50	4.24	3.94
GB-NM	36.5	16.4	0.80	4.48	4.38
OB2NV	32.3	9.1	0.78	4.16	4.05
OB3NV	32.3	9.3	0.72	4.14	4.00

241 18 JUN 77 10:23:56.0 0.0 JAPAN 42.1N 142.0E 310.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	72.5	17.6	0.80	4.76	4.67
GB-NM	79.1	15.8	0.80	4.61	4.51
OB2NV	73.5	11.3	0.90	4.56	4.52
OB3NV	73.5	10.4	0.90	4.53	4.48

242 18 JUN 77 16:49:41.8 0.0 CHILE-BOLIVIA BDR 21.0S 68.7W 134.1 127.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	74.4	246.2	1.00	5.67	5.67
GB-NM	69.2	138.6	1.10	5.49	5.53
YP-NV	73.2	514.0	1.10	6.06	6.10
YP2NV	73.2	578.0	1.10	6.11	6.15
HN-ME	67.2	85.0	1.50	5.44	5.62

243 19 JUN 77 20:56:42.9 0.0 MEXICO-GUATEMALA 15.7N 93.0W 130.0 145.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	30.7	53.8	1.10	5.00	5.04
GB-NM	24.5	114.5	1.10	5.12	5.16
OB2NV	29.6	35.0	1.64	5.09	5.30
OB3NV	29.6	36.0	1.60	5.08	5.29

244 19 JUN 77 7:22:17.4 0.0 SAMOA IS. REGION 13.3S 174.0W 239.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	74.8	32.3	0.70	4.88	4.72
GB-NM	80.2	14.7	1.50	4.89	5.06

245 19 JUN 77 8:26:34.9 0.0 WINDWARD IS. 11.1N 62.1W 103.7 254.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	55.3	11.9	0.70	3.95	3.80
GB-NM	47.9	7.9	0.80	3.66	3.57

246 19 JUN 77 11:47:22.3 0.0 KURILES 47.2N 151.0E 311.7 118.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	64.4	76.9	1.00	5.25	5.25
GB-NM	70.9	126.5	0.60	5.21	4.99
OB2NV	65.4	100.0	1.40	5.61	5.76
OB3NV	65.4	86.0	1.20	5.43	5.51
YF-NV	65.5	497.0	0.70	5.93	5.[illegible]8
YF2NV	65.5	548.0	1.00	6.10	6.10

247 20 JUN 77 3:10:39.0 0.0 MEXICO-GUATEMALA 15.2N 92.8W 130.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	31.2	17.6	0.80	4.57	4.47
GB-NM	25.0	16.9	1.00	4.43	4.43

248 1 AUG 77 0:47:15.9 0.0 N. COLUMBIA 7.1N 72.7W 116.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
RK-ON	47.1	61.0	0.53	5.19	4.91
FA-NV	50.3	8.0	0.80	4.22	4.13
GB-NM	43.1	8.2	0.70	3.98	3.83

249 1 AUG 77 16:30:37.7 0.0 CHILE-BOLIVIA BDR. 21.8S 68.6W 134.5 150.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	74.0	28.0	1.10	4.77	4.81
OB3NV	74.0	32.0	1.05	4.79	4.81
FA-NV	75.1	30.5	0.70	4.60	4.45
GB-NM	68.9	73.5	0.70	4.99	4.83

250 1 AUG 77 19:12:20.7 0.0 FIJI IS. 19.3S 178.4W 237.9 783.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
YP-NV	81.4	194.0	0.85	5.23	5.16
YP2NV	81.4	226.0	0.76	5.25	5.13
YP4NV	81.4	272.0	0.75	5.33	5.20
YP3NV	81.4	262.0	0.70	5.29	5.13

251 2 AUG 77 2:22: 6.4 0.0 ANDREANOF IS. 51.4N 175.4W 308.8 26.

STA	DIST	AMP	T	LOG10(A/MT, + B MB	LOG1C(A/M) + B MB
HN-ME	64.2	72.0	0.95	5.47	5.45
RK-CN	48.5	119.8	0.92	5.55	5.51

252 6 AUG 77 5:26:43.2 0.0 TONGA REG. 22.0S 175.8W 234.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	81.6	44.0	0.94	5.18	5.15
OB3NV	81.6	41.8	1.10	5.25	5.29

253 6 AUG 77 11:52:46.5 0.0 TONGA IS. 18.5S 174.1W 235.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	78.7	36.0	0.70	4.96	4.80
GB-NM	83.7	30.8	1.30	5.38	5.50
YP-NV	77.9	46.7	1.15	5.37	5.[illegible]
YP2NV	77.9	49.5	1.22	5.44	5.53
YP4NV	77.9	73.4	1.27	5.64	5.75
YP3NV	77.9	54.6	1.32	5.5[illegible]	5.66
OB2NV	78.0	34.2	1.06	5.1[illegible]	5.20
OB3NV	78.0	32.3	1.19	5.24	5.31

254 7 AUG 77 7: 8: 2.6 0.0 PANAMA-COSTA RICA 8.6N 82.7W 124.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	42.5	180.9	1.10	5.53	5.57
GB-NM	35.8	7.9	1.50	4.52	4.69
YP4NV	41.5	176.8	1.58	5.79	5.98
YP3NV	41.5	209.2	1.47	5.81	5.97
YP-NV	41.4	184.0	1.50	5.76	5.94
YP2NV	41.4	204.0	1.50	5.81	5.99
OB2NV	41.6	91.5	1.60	5.51	5.71
OB3NV	41.6	93.0	1.70	5.56	5.79
RK-CN	43.2	757.6	0.90	6.04	5.99
HN-ME	39.6	34.2	0.80	4.60	4.50

255 7 AUG 77 16:46:31.0 0.0 TONGA IS. 22.3S 174.7W [illegible]3.3 40.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	81.1	7.4	1.40	4.54	4.69
OB3NV	81.1	8.0	1.40	4.58	4.72

256 1 AUG 77 1:50:57.5 0.0 CST OF MEXICO 14.4N 98.7W 141.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	28.7	6.9	0.80	4.06	3.96
GB-NM	23.5	22.1	1.30	4.54	4.65

257 7 AUG 77 23:26:55.0 0.0 ANDREANOF IS. 52.2N 176.2W 310.0 125.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	42.9	79.8	0.80	4.98	4.88
GB-NM	49.6	222.6	0.30	5.55	5.03
YP4NV	44.0	215.0	0.66	5.31	5.13
YP3NV	44.0	185.0	0.70	5.26	5.11
YP-NV	44.0	176.0	0.64	5.22	5.02
YP2NV	44.0	178.0	0.75	5.27	5.15
OB2NV	43.9	115.0	0.96	5.17	5.15
OB3NV	43.9	110.0	0.85	5.11	5.04
RK-ON	48.5	89.7	0.56	5.00	4.75

258 8 AUG 77 7: 0: 6.3 0.0 CST OF COLUMBIA 6.9N 77.8W 121.2 22.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.9	35.0	1.00	5.07	5.07
GB-NM	40.1	17.9	0.90	4.37	4.32
OB2NV	46.1	14.0	0.95	4.59	4.57
OB3NV	46.1	14.1	1.10	4.68	4.73
HN-ME	40.2	101.8	1.05	5.19	5.21
RK-ON	45.9	63.7	0.90	5.21	5.17

259 8 AUG 77 15: 5:39.7 0.0 FIJI IS. 17.2S 178.8W 239.7 470.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	80.0	60.0	0.70	4.64	4.48
GB-NM	86.2	20.1	0.90	4.44	4.39
OB2NV	80.2	50.0	1.15	4.81	4.87
OB3NV	80.2	56.0	1.10	4.82	4.86

** OMITTED **

260 8 AUG 77 22:20:53.7 0.0 FIGI PEG. 21.2S 179.4E 238.0 350.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	84.2	22.4	0.58	4.43	4.20
OB3NV	84.2	22.8	0.64	4.46	4.27

261 9 AUG 77 1:38:12.7 0.0 N. ATLANTIC RIDGE 30.6N 41.5W 72.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	60.3	12.0	1.30	4.80	4.92
GB-NM	54.0	9.9	1.50	4.79	4.97
OB2NV	60.6	23.5	1.28	5.11	5.22
OB3NV	60.6	17.0	1.36	5.02	5.15
RK-CN	43.3	18.8	0.75	4.37	4.25
HN-ME	25.7	29.7	0.94	4.59	4.57

262 10 AUG 77 9:36: 1.9 0.0 KODIAK IS. 56.3N 152.3W 319.9 52.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	29.8	26.5	2.00	5.17	5.47
GB-FM	36.0	36.0	1.10	4.98	5.02
OB2NV	31.0	21.0	1.70	5.01	5.24
OB3NV	31.0	21.0	1.74	5.03	5.27

263 21 JUN 77 15:32:12.0 0.0 PERU COAST 14.5S 75.0W 135.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	65.6	12.9	0.80	4.73	4.63
GB-NM	59.5	11.4	1.00	4.56	4.56

264 23 JUN 77 20:19:13.6 0.0 KAMCHATKA CST 53.9N 163.5E 315.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	54.4	89.8	0.80	5.37	5.27
GB-NM	60.7	102.7	0.70	5.45	5.30

265 27 JUN 77 18:57:19.7 0.0 ECUADOR 1.4S 76.7W 127.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	54.0	47.8	1.40	5.43	5.57
GB-NM	47.5	34.0	0.80	5.05	4.95

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266    28 JUN 77    0:52:25.3  0.0      CHILE-BOLIVIA BDR        21.4S   68.1W    33.9    126.
                                        LOG10(A/MT) + B                  LOG10(A/M) + B
       STA      DIST      AMP      T              MB                              MB
       PA-NV    75.1      64.3   0.70           4.95                            4.80
       GB-NM    68.8      26.3   0.70           4.56                            4.41

267    28 JUN 77   15:38:34.9  0.0      N. ATLANTIC RIDGE        22.5N   45.2W    82.0      0.
                                        LOG10(A/MT) + B                  LOG10(A/M) + B
       STA      DIST      AMP      T              MB                              MB
       PA-NV    61.7      77.5   1.80           5.99                            6.25
       GB-NM    54.8      47.9   1.50           5.48                            5.66

268    28 JUN 77   16:18:12.9  0.0      N. ATLANTIC RIDGE        22.7N   45.2W    81.8      0.
                                        LOG10(A/MT) + B                  LOG10(A/M) + B
       STA      DIST      AMP      T              MB                              MB
       PA-NV    61.6      75.0   1.80           5.97                            6.22
       GB-NM    54.7     102.7   1.40           5.76                            5.91
       OB2NV    61.7     153.0   1.60           6.20                            6.41

269    28 JUN 77   19:18:34.7  0.0      N. ATLANTIC RIDGE        22.6N   45.2W    81.9     13.
                                        LOG10(A/MT) + B                  LOG10(A/M) + B
       STA      DIST      AMP      T              MB                              MB
       PA-NV    61.8      57.1   2.70           6.40                            6.83
       GB-NM    54.9     132.4   1.80           6.06                            6.31
       OB2NV    61.7     158.0   1.70           6.24                            6.47

270    29 JUN 77    4: 6:41.3  0.0      CHIAPAS MEXICO           12.0N   95.9W   138.9      0.
                                        LOG10(A/MT) + B                  LOG10(A/M) + B
       STA      DIST      AMP      T              MB                              MB
       PA-NV    32.2      16.3   0.70           4.48                            4.33
       GB-NM    26.7      14.4   1.10           4.40                            4.44

271    29 JUN 77    8:47:15.4  0.0      ANDREANOF IS.            51.6N  176.3W   309.1     45.
                                        LOG10(A/MT) + B                  LOG10(A/M) + B
       STA      DIST      AMP      T              MB                              MB
       PA-NV    43.0      33.8   1.30           4.92                            5.04
       GB-NM    49.7      73.5   0.80           5.20                            5.10
       OB2NV    44.0      26.0   1.00           4.62                            4.62
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272 30 JUN 77 2:45:55.4 0.0 N. CHILE 19.2S 69.5W 133.5 17.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	72.5	178.6	1.20	5.94	6.02
GB-NM	66.3	68.5	0.70	5.35	5.20
OB2NV	71.4	188.0	0.80	5.74	5.64
YP-NV	71.3	337.0	1.20	6.21	6.29
YP2NV	71.3	413.0	1.20	6.30	6.38

273 30 JUN 77 8:51:24.7 0.0 TONGA IS. 15.2S 174.6W 238.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	76.6	35.7	1.00	5.15	5.15
GB-NM	81.9	39.0	1.20	5.32	5.40
OB2NV	76.0	29.0	1.00	5.06	5.06
OB3NV	76.0	26.0	1.10	5.09	5.13

274 30 JUN 77 11:13:36.9 0.0 N. CHILE 27.2S 69.5W 138.5 42.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	79.0	45.5	1.00	5.07	5.07
GB-NM	73.1	18.0	0.80	4.64	4.55

275 1 JUL 77 12: 7: 8.2 0.0 TONGA IS. 17.1S 174.1W 236.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	77.7	32.1	0.80	5.03	4.93
GB-NM	82.8	34.2	0.90	5.18	5.13

276 2 JUL 77 5: 9: 2.0 0.0 N. CHILE CST 25.9S 71.0W 138.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	77.1	96.4	0.70	5.45	5.30
GB-NM	71.3	76.9	1.20	5.62	5.70

277 2 JUL 77 15:50:46.9 0.0 KAMCHATKA CST 53.0N 160.2E 314.9 57.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	56.5	46.5	1.10	5.24	5.28
GB-NM	62.9	134.6	1.00	5.63	5.63
OB2NV	57.8	29.0	1.20	5.10	5.18
OB3NV	57.8	26.0	1.30	5.11	5.22

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278    3 JUL 77  12:55:39.9  0.0      FOX IS.                    52.4N  167.5W   310.1    11.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
     STA      DIST     AMP     T              MB                                MB
    PA-NV     37.5     27.6   0.90           4.62                              4.58
    GB-NM     44.3    144.2   0.90           5.37                              5.33

279    3 JUL 77  17:29:46.9  0.0      FOX IS.                    52.6N  167.5W   310.4     0.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
     STA      DIST     AMP     T              MB                                MB
    PA-NV     37.5     25.3   0.60           4.43                              4.21
    GB-NM     44.3     96.2   0.90           5.20                              5.16

280    4 JUL 77   2: 7:41.0  0.0      N. ATLANTIC                57.6N   32.9W    40.1     5.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
     STA      DIST     AMP     T              MB                                MB
    PA-NV     54.8      8.2   0.80           4.33                              4.24
    GB-NM     51.6     16.6   1.30           4.82                              4.93

281    5 JUL 77   1:13:14.7  0.0      KURILES                    50.7N  156.8E   313.3     0.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
     STA      DIST     AMP     T              MB                                MB
    PA-NV     59.4     11.2   0.50           4.34                              4.04
    GB-NM     65.8     24.4   0.70           4.96                              4.80

282    6 JUL 77   4:42:21.1  0.0      S. PANAMA                   5.4N   82.4W   127.5     0.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
     STA      DIST     AMP     T              MB                                MB
    PA-NV     45.2    142.9   2.00           6.09                              6.39
    GB-NM     38.7    278.8   1.50           5.88                              6.05

283    6 JUL 77  10: 2:52.9  0.0      ARGENTINA                  27.9S   67.3W   137.4   180.
                                      LOG10(A/MT) + B                   LOG10(A/M) + B
     STA      DIST     AMP     T              MB                                MB
    PA-NV     80.7     76.8   0.80           5.02                              4.93
    GB-NM     74.7     32.1   0.80           4.65                              4.55
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285    7 JUL 77   9:57:32.3  0.0       TONGA IS.               16.3S  174.8W   237.6    90.
                                        LOG10(A/MT) + B                LOG10(A/M) + B
       STA     DIST     AMP     T            MB                             MB
      PA-NV    77.5     12.5  0.90          4.39                           4.34
      GB-NM    82.7     14.5  0.80          4.48                           4.38

286    7 JUL 77  15: 3:37.1  0.0       EASTER ISLAND           35.0S  107.6W   172.8     0.
                                        LOG10(A/MT) + B                LOG10(A/M) + B
       STA     DIST     AMP     T            MB                             MB
      PA-NV    74.1     15.9  0.90          4.66                           4.62
      GB-NM    46.5     10.7  2.00          5.09                           5.39

287    9 JUL 77   7: 3:55.5  0.0       MEXICO                  16.9N   95.1W   131.7   102.
                                        LOG10(A/MT) + B                LOG10(A/M) + B
       STA     DIST     AMP     T            MB                             MB
      PA-NV    28.5      5.7  1.10          3.93                           3.97
      GB-NM    22.5     99.3  0.70          4.67                           4.52

288   11 JUL 77   9:38:32.1  0.0       RAT IS.                 51.2N  176.2E   309.5     3.
                                        LOG10(A/MT) + B                LOG10(A/M) + B
       STA     DIST     AMP     T            MB                             MB
      PA-NV    47.7     21.6  1.20          5.06                           5.14
      GB-NM    54.4     19.1  1.30          4.97                           5.09

289   11 JUL 77  12:35:49.6  0.0       KURILES                 47.9N  155.8E   310.7    77.
                                        LOG10(A/MT) + B                LOG10(A/M) + B
       STA     DIST     AMP     T            MB                             MB
      PA-NV    61.2     12.5  1.10          4.70                           4.74
      GB-NM    67.8     20.2  1.30          4.91                           5.02

290   11 JUL 77  15:57:19.0  0.0       CENT. ALASKA            64.8N  146.7W   336.5     0.
                                        LOG10(A/MT) + B                LOG10(A/M) + B
       STA     DIST     AMP     T            MB                             MB
      PA-NV    31.6     10.2  1.00          4.41                           4.41
      GB-NM    36.5     73.5  1.00          5.12                           5.12

291   16 JUL 77  12:39:54.9  0.0       ARGENTINA               23.8S   66.7W   134.4   111.
                                        LOG10(A/MT) + B                LOG10(A/M) + B
       STA     DIST     AMP     T            MB                             MB
      PA-NV    77.7     31.8  1.00          4.79                           4.79
      GB-NM    71.5     40.4  1.00          4.90                           4.90
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292 3 AUG 77 2:25:21.5 0.0 PANAMA-COLUMBIA BDR 8.4N 77.5W 119.5 154.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	46.0	15.5	1.00	4.28	4.28
GB-NM	39.1	30.1	0.80	4.58	4.48

293 3 AUG 77 12: 5:36.8 0.0 KURILES 49.9N 154.5E 313.2 95.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	61.0	79.5	0.70	5.28	5.12
GB-NM	67.5	150.6	0.70	5.42	5.26

294 4 AUG 77 13:20:50.5 0.0 CENT. AMERICA CST 11.8N 88.6W 128.5 10.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	36.4	90.9	1.10	5.30	5.35
GB-NM	30.0	153.8	1.30	5.67	5.79

295 9 AUG 77 12:19:34.6 0.0 S. PERU 15.4S 72.4W 133.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	67.8	6.0	1.10	4.55	4.59
GB-NM	61.6	12.0	1.00	4.74	4.74

296 11 JUN 77 11:45:21.1 0.0 FIJI IS. 16.2S 178.5W 240.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	79.9	21.0	0.70	4.60	4.45
OB2NV	79.3	15.3	1.10	4.73	4.77
OB3NV	79.3	14.0	1.20	4.75	4.83

297 17 JUN 77 22:54:28.4 0.0 COSTA RICA 10.7N 85.3W 125.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
GB-NM	32.7	30.1	0.70	4.75	4.59
OB2NV	38.3	36.0	0.70	4.60	4.44
OB3NV	38.3	38.5	0.70	4.63	4.47

298 18 JUN 77 10: 4: 2.2 0.0 FIJI IS. 20.2S 177.8W 236.8 500.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	82.3	288.5	0.70	5.33	5.18
YP-NV	81.6	196.0	0.90	5.25	5.21
YP2NV	81.6	261.0	0.80	5.34	5.24
OB2NV	81.7	146.0	0.75	5.06	4.93
OB3NV	81.7	149.0	0.70	5.04	4.89

299 26 JUN 77 5:59:26.2 0.0 FIGI IS. 17.8S 178.4W 239.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	81.0	73.3	0.80	5.28	5.19
OB2NV	80.4	67.0	0.85	5.21	5.14

300 26 JUN 77 10:15:48.9 0.0 BAHAMA IS. 21.1N 69.7W 98.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	43.4	48.9	1.00	4.89	4.89
OB2NV	43.1	31.0	1.00	4.69	4.69
YP-NV	43.0	119.0	0.85	5.22	5.15

301 13 AUG 77 3:13:35.1 0.0 KURILES 44.3N 147.9E 310.2 60.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	67.7	20.3	0.90	4.75	4.70
GB-KM	74.3	83.3	1.00	5.30	5.30
OB2NV	68.7	37.0	0.95	5.01	4.99
OB3NV	68.7	33.3	0.95	4.96	4.94
RK-ON	70.9	44.6	0.86	5.01	4.95
HN-ME	84.1	24.1	0.74	4.85	4.72

302 13 AUG 77 7:57:44.9 0.0 CENT. CHILE CST 28.3S 71.5W 140.7 140.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	78.9	16.4	1.00	4.48	4.48
GB-NM	73.1	29.8	1.10	4.80	4.85
OB2NV	77.7	12.2	0.85	4.29	4.22
OB3NV	77.7	14.7	0.70	4.30	4.14
RK-ON	81.5	33.0	0.67	4.63	4.46

303 13 AUG 77 19:33:11.7 0.0 JAPAN 43.2N 145.4E 310.2 58.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	69.8	11.0	0.70	4.34	4.19
GB-NM	76.4	36.8	0.90	4.95	4.91
OB2NV	70.8	22.7	0.83	4.71	4.63
OB3NV	70.8	21.4	0.88	4.71	4.65
RK-ON	72.9	53.2	0.64	5.00	4.80

304 14 AUG 77 4:22:51.9 0.0 VENEZUEIA CST 10.9N 62.6W 104.3 119.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	55.0	17.5	1.00	4.67	4.67
GB-NM	47.4	33.1	0.70	4.61	4.46
OB2NV	54.5	23.7	0.89	4.76	4.71
OB3NV	54.5	19.8	1.00	4.72	4.72
RK-ON	47.3	34.8	0.48	4.56	4.24

305 14 AUG 77 10:58: 9.5 0.0 N. CHILE CST 19.8S 73.6W 137.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	70.8	45.0	1.00	5.25	5.25
GB-NM	64.8	44.1	1.10	5.42	5.46
OB2NV	69.6	45.9	0.88	5.25	5.20
OB3NV	69.6	42.5	0.91	5.23	5.19
RK-ON	72.8	30.7	0.80	5.01	4.91

306 14 AUG 77 11:30:33.5 0.0 N. PERU CST 8.2S 80.3W 135.9 35.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
GB-NM	51.5	7.9	0.80	4.25	4.15
OB2NV	56.4	3.9	1.00	4.09	4.09
OB3NV	56.4	3.9	1.00	4.09	4.09
RK-ON	60.2	24.4	0.90	4.89	4.84

307 14 AUG 77 23:49:15.7 0.0 SEA OF JAPAN 41.8N 138.6E 312.1 30.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
YF4NV	75.8	135.0	1.10	5.70	5.74
YF3NV	75.8	160.0	1.25	5.87	5.96
YF-NV	75.9	104.0	1.10	5.59	5.63
YF2NV	75.9	122.0	1.15	5.69	5.75
OB2NV	75.7	139.0	1.20	5.77	5.85
RK-ON	76.8	42.8	0.56	4.96	4.70

308 15 AUG 77 0:24:30.9 0.0 ANDREANOF IS. 51.5N 175.6W 308.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	42.6	7.7	0.70	3.96	3.80
GB-NM	49.3	20.1	1.10	4.84	4.89

309 15 AUG 77 5:41: 9.3 0.0 FIGI IS. 22.9S 176.0W 233.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	83.1	51.5	1.70	5.80	6.03
YF4NV	82.3	86.3	1.63	5.93	6.14
YF3NV	82.3	84.0	1.50	5.85	6.03
YF-NV	82.3	76.0	1.40	5.76	5.91
YF2NV	82.3	83.0	1.40	5.80	5.94
OB2NV	82.4	38.2	1.10	5.29	5.33
OB3NV	82.4	41.1	1.20	5.39	5.47

310 15 AUG 77 5:54: 5.4 0.0 CENT. AMERICA CST 12.9N 91.0W 130.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	34.1	13.7	0.80	4.46	4.36
GB-NM	27.9	13.5	0.70	4.29	4.14
OB2NV	33.0	10.4	0.83	4.35	4.27
OB3NV	33.0	10.0	0.86	4.34	4.28
RK-ON	38.0	24.1	0.72	4.46	4.32

311 15 AUG 77 16:49:52.5 0.0 PERU ECUADOR BDR 4.3S 80.6W 133.4 126.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	54.1	10.6	2.00	4.93	5.23
GB-NM	47.9	30.7	1.00	4.68	4.68

312 16 AUG 77 4:47:14.5 0.0 TONGA IS. 17.6S 170.3W 233.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	75.6	35.6	1.30	5.31	5.42
GB-NM	80.5	34.7	1.00	4.99	4.99

313 20 AUG 77 2:46:11.4 0.0 CARIBBEAN SEA 16.7N 86.7W 120.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	33.8	42.6	1.50	5.33	5.50
GB-NM	27.0	3.2	1.00	3.71	3.71

314 20 AUG 77 3:51:51.4 0.0 CARIBBEAN SEA 16.4N 86.6W 120.4 7.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	34.1	196.8	1.00	5.69	5.69
GB-NM	27.3	5.8	0.70	3.85	3.69

315 20 AUG 77 18:24:24.4 0.0 ARGENTINA 28.8S 68.4W 138.7 120.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	80.9	47.9	1.50	5.26	5.44
GB-NM	74.9	57.7	1.30	5.24	5.35

316 20 AUG 77 22: 0: 0.6 0.0 CENT. SIBERIA 64.1N 99.8E 344.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	73.4	16.3	1.00	4.77	4.77
GB-NM	77.0	102.6	0.66	5.46	5.28
OB2NV	74.8	29.0	0.65	4.81	4.62
OB3NV	74.8	31.0	0.75	4.89	4.76
HN-ME	69.3	78.0	0.65	5.50	5.31
RK-ON	64.6	61.0	0.67	5.34	5.17

317 21 AUG 77 3:15:28.4 0.0 TONGA IS 26.5S 175.9W 231.1 147.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
OB2NV	84.9	13.0	1.00	4.42	4.42
OB3NV	84.9	12.0	1.10	4.46	4.50

318 21 AUG 77 4:44:30.1 0.0 SAMOA IS 14.7S 173.3W 237.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	75.4	23.6	0.80	4.83	4.73
GB-NM	80.6	22.4	1.40	5.06	5.21

319 21 AUG 77 5:19:39.2 0.0 HONSHU CST 35.1N 141.1E 305.4 74.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
GB-NM	84.2	121.8	0.70	5.43	5.28
YP-NV	78.4	136.0	1.30	5.70	5.81
YP2NV	78.4	180.0	1.26	5.79	5.89
YP4NV	78.4	171.0	1.24	5.76	5.85
YP3NV	78.4	175.0	1.35	5.83	5.96
OB2NV	78.3	65.0	1.20	5.32	5.40
OB3NV	78.3	60.0	1.20	5.28	5.36
RK-ON	81.5	47.1	1.00	5.04	5.04

320   21 AUG 77   11:33:41.7   0.0   GUATEMALA CST   13.6N   90.1W   128.4   0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	34.1	113.2	1.00	5.45	5.45
GB-NM	27.7	44.9	1.10	4.99	5.03
YP-NV	32.9	106.0	1.20	5.56	5.64
YP2NV	32.9	140.0	1.25	5.71	5.81
YP4NV	32.9	142.0	1.30	5.75	5.86
YP3NV	32.9	107.0	1.25	5.59	5.69
OB2NV	33.1	63.4	1.11	5.28	5.33
OB3NV	33.1	61.0	1.10	5.26	5.30
RK-ON	37.3	88.8	0.75	5.04	4.92

321   23 AUG 77   3:12:55.6   0.0   CHILE BOLIVIA BDR   21.5S   68.3W   134.1   125.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	75.0	51.9	0.80	4.91	4.81
GB-NM	68.8	40.4	0.80	4.80	4.70
YP-NV	73.8	96.0	0.93	5.23	5.20
YP2NV	73.8	93.0	1.00	5.24	5.24
YP4NV	73.8	120.0	0.83	5.29	5.21
OB2NV	73.9	64.0	0.95	5.06	5.04
OB3NV	73.9	64.0	0.90	5.04	5.00
RK-ON	75.7	120.9	0.70	5.23	5.07

322   25 AUG 77   7:35:30.7   0.0   FIGI IS   14.9S   177.3W   240.3   0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	78.2	19.8	1.60	5.22	5.43
GB-NM	83.6	37.3	1.30	5.47	5.58

323   25 AUG 77   16:54:40.2   0.0   ARGENTINA   23.8S   66.6W   134.3   236.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	77.8	12.2	0.70	4.16	4.00
GB-NM	71.6	16.3	1.00	4.41	4.41

324   26 AUG 77   7:16: 0.8   0.0   RAT IS   51.0N   176.1E   309.2   146.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	47.8	33.9	1.00	4.65	4.65
GB-NM	54.5	30.8	1.00	4.81	4.81
YP-NV	48.9	121.0	0.75	5.14	5.02
YP2NV	48.9	148.0	0.80	5.25	5.16
YP4NV	48.9	168.0	0.78	5.30	5.19
YP3NV	48.9	164.0	0.70	5.25	5.09
OB2NV	48.8	75.0	0.85	4.97	4.90
OB3NV	48.8	75.0	0.80	4.95	4.86
RK-ON	53.0	276.1	0.70	5.63	5.47
HN-ME	68.3	52.0	0.70	4.91	4.76

325 27 AUG 77 2:54:26.6 0.0 N. CHILE CST 27.7S 71.0W 139.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	78.6	18.4	1.00	4.81	4.81
GB-NM	72.8	17.1	0.80	4.75	4.65

326 28 AUG 77 15:40:56.7 0.0 S. PANAMA 5.1N 81.4W 126.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.0	32.7	1.00	5.02	5.02
GB-NM	39.5	36.8	1.00	4.67	4.67
YP4NV	45.0	63.0	1.10	5.27	5.31
YP3NV	45.0	59.0	1.05	5.21	5.23
OB2NV	45.1	21.0	1.10	4.80	4.84
OB3NV	45.1	21.0	1.10	4.80	4.84
RK-CN	46.9	28.9	0.85	4.99	4.92

327 29 AUG 77 16:36: 5.5 0.0 ARGENTINA 31.8S 69.2W 141.1 137.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	82.9	70.0	2.00	5.68	5.98
GB-NM	77.2	126.5	1.40	5.61	5.76

328 29 AUG 77 21: 0: 8.7 0.0 ANDREANOF IS 51.7N 174.0W 309.1 88.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	41.6	28.3	1.00	4.74	4.74
GB-NM	48.3	32.1	1.00	4.87	4.87

329 30 AUG 77 6:50:41.7 0.0 CENT. ALASKA 63.2N 151.2W 332.0 124.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	32.2	53.1	1.30	5.11	5.22
GB-NM	37.5	102.6	1.00	5.33	5.33
YP-NV	33.7	125.0	1.00	5.35	5.35
YP2NV	33.7	156.0	1.00	5.45	5.45
YP4NV	33.7	164.0	0.95	5.45	5.43
YP3NV	33.7	160.0	0.95	5.44	5.41
OB2NV	33.5	72.0	0.90	5.07	5.02
OB3NV	33.5	69.0	1.00	5.09	5.09
RK-CN	32.3	59.9	0.50	4.77	4.47

330 30 AUG 77 15:12:24.0 0.0 ANDREANOF IS 51.5N 174.1W 308.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	41.6	18.9	1.20	4.61	4.69
GB-NM	48.4	10.9	1.00	4.60	4.60

331 31 AUG 77 0:42:10.1 0.0 N. COLUMBIA 7.4N 76.2W 119.2 58.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	47.6	153.2	2.00	6.12	6.42
GB-NM	40.7	211.5	2.00	6.08	6.38

332 1 SEP 77 3: 0: 0.0 0.0 NOVAYA ZEMLYA 73.3N 54.3E 3.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	67.9	84.7	0.50	5.42	5.12
GB-NM	69.3	47.8	0.80	5.27	5.17
YF-NV	69.4	123.0	0.95	5.73	5.71
YF2NV	69.4	151.0	1.10	5.91	5.95
YF4NV	69.4	146.0	1.00	5.83	5.83
YF3NV	69.4	137.0	1.10	5.87	5.91
RK-CN	53.9	607.8	0.70	6.14	5.99
HN-ME	54.5	166.0	1.00	5.72	5.72

333 1 SEP 77 10:55:13.3 0.0 ANDREANOF IS 51.8N 172.2W 309.2 140.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	40.4	4.4	0.50	3.62	3.31
GB-NM	47.2	9.0	0.80	4.01	3.92

334 1 SEP 77 17:37: 0.9 0.0 N. COLUMBIA 6.9N 76.1W 119.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	48.1	53.6	1.10	5.39	5.43
GB-NM	41.1	91.9	1.70	5.56	5.79
OB2NV	47.3	70.0	1.25	5.61	5.71
OB3NV	47.3	73.0	1.30	5.66	5.77
RK-ON	46.3	108.1	1.10	5.64	5.68

335 2 SEP 77 5:58:19.1 0.0 PANAMA 7.5N 78.4W 121.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.1	19.6	0.80	4.72	4.62
GB-NM	39.2	14.4	1.00	4.26	4.26
OB2NV	45.2	12.0	1.20	4.63	4.71
OB3NV	45.2	13.0	1.20	4.67	4.75
RK-CN	45.1	80.2	0.75	5.21	5.08

336 2 SEP 77 7: 9:53.8 0.0 GALAPAGOS IS 0.7N 91.1W 141.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) B MB
FA-NV	44.4	24.0	2.30	5.39	5.75
GB-NM	39.0	40.5	0.70	4.58	4.42
OB2NV	45.2	27.0	1.00	4.85	4.85
OB3NV	45.2	26.0	1.00	4.84	4.84
RK-ON	50.2	46.0	0.80	4.98	4.88

337 3 SEP 77 11:56:17.7 0.0 TONGA IS 15.1S 173.5W 237.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	75.8	45.0	2.00	5.75	6.05
GB-NM	81.0	105.3	1.30	5.72	5.83
YP4NV	75.1	107.0	1.30	5.73	5.85
YP3NV	75.1	101.0	1.30	5.71	5.82
YP-NV	75.1	89.0	1.30	5.65	5.77
YP2NV	75.1	100.0	1.30	5.70	5.82
OB2NV	75.1	46.0	1.10	5.24	5.29
OB3NV	75.2	48.0	1.10	5.27	5.31

338 3 SEP 77 15:24:57.0 0.0 VENEZUELA 8.1N 61.7W 106.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	57.5	9.6	0.80	4.40	4.31
GB-NM	50.2	19.9	1.00	4.70	4.70

339 3 SEP 77 15:33:45.7 0.0 DOMINICAN REP. 19.5N .71.0W 101.4 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	43.3	9.6	0.80	4.10	4.01
GB-NM	36.0	19.9	1.00	4.60	4.60

340 4 SEP 77 15:40:59.7 0.0 RAT IS 51.0N 178.4E 308.9 43.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	46.3	95.0	0.50	5.20	4.90
GB-NM	53.1	307.0	1.30	6.13	6.24
YP4NV	47.5	260.0	1.00	5.89	5.89
YP3NV	47.5	260.0	1.00	5.89	5.89
YP-NV	47.5	251.0	0.90	5.83	5.79
YP2NV	47.5	339.0	1.00	6.00	6.00
OB2NV	47.3	110.0	1.00	5.51	5.51
OB3NV	47.3	148.0	0.80	5.56	5.46
RK-ON	51.9	191.5	0.80	5.64	5.55
HN-ME	67.6	143.0	1.15	5.76	5.82

341 4 SEP 77 16:39:47.5 0.0 S. HONSHU 33.2N 140.6E 304.1 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	78.9	70.0	1.00	5.36	5.36
YP4NV	79.9	326.0	1.25	6.09	6.19
YP3NV	79.9	342.0	1.10	6.02	6.06
YP-NV	79.9	318.0	1.00	5.91	5.91
YP2NV	79.9	321.0	1.20	6.05	6.13
OB2NV	79.8	128.0	1.15	5.63	5.69
OB3NV	79.7	122.0	1.20	5.65	5.73
RK-ON	83.3	105.9	1.00	5.73	5.73

342 4 SEP 77 17:10:37.0 0.0 RAT IS. 50.9N 178.3E 308.8 76.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.4	180.0	0.70	5.48	5.33
YP4NV	47.5	826.0	0.90	6.25	6.20
YP3NV	47.5	977.0	1.10	6.43	6.47
YP-NV	47.5	628.0	1.20	6.31	6.38
YP2NV	47.5	745.0	1.15	6.35	6.41
OB2NV	47.4	50.0	0.70	4.94	4.79
OB3NV	47.4	77.0	0.70	5.13	4.97
RK-CN	52.0	131.6	0.60	5.43	5.20
HN-ME	67.7	80.0	1.15	5.38	5.44

343 4 SEP 77 17:24:50.5 0.0 RAT IS 50.9N 178.1E 308.8 63.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.6	170.0	0.80	5.55	5.45
YP4NV	47.7	985.0	1.10	6.48	6.52
YP3NV	47.7	1044.0	1.20	6.57	6.64
YP-NV	47.7	913.0	1.10	6.44	6.48
YP2NV	47.7	1159.0	1.10	6.55	6.59
OB2NV	47.5	65.0	0.70	5.09	4.94
OB3NV	47.5	52.0	0.60	4.96	4.74
RK-CN	52.1	208.6	0.50	5.57	5.27
HN-ME	67.8	130.0	1.50	5.76	5.93

344 4 SEP 77 18: 0:11.2 0.0 RAT IS 51.0N 178.3E 308.9 3.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.4	27.6	1.00	4.97	4.97
YP-NV	47.5	103.0	0.83	5.54	5.45
YP2NV	47.5	120.0	0.85	5.61	5.54
OB2NV	47.4	34.0	1.00	5.12	5.12
OB3NV	47.4	32.0	1.10	5.17	5.21
YP4NV	47.5	118.0	0.75	5.56	5.43
YP3NV	47.5	94.0	0.70	5.43	5.28
RK-ON	51.9	98.4	0.50	5.19	4.89

345 4 SEP 77 17:38:21.6 0.0 RAT IS 51.1N 177.6E 309.1 13.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	46.8	115.0	1.10	5.68	5.72
GB-NM	53.6	276.3	1.20	6.04	6.12

346 4 SEP 77 18:25:55.1 0.0 RAT IS 51.1N 177.9E 309.1 73.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	46.6	90.0	1.20	5.46	5.54
GB-NM	53.4	263.2	1.10	5.98	6.02
YP-NV	47.8	287.0	1.00	5.84	5.84
YP2NV	47.8	315.0	1.30	6.07	6.19
OB2NV	47.6	103.0	1.10	5.47	5.51
OB3NV	47.6	98.0	1.10	5.44	5.48
YP4NV	47.7	326.0	1.20	6.03	6.11
YP3NV	47.7	384.0	1.25	6.13	6.23
RK-ON	52.1	156.2	0.50	5.46	5.16
HN-ME	67.7	34.0	0.50	4.92	4.62

347 4 SEP 77 18:38:28.4 0.0 RAT IS 51.1N 178.3E 309.0 68.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	46.4	28.5	1.10	4.90	4.94
GB-NM	53.1	105.3	1.30	5.69	5.80

348 4 SEP 77 19:23: 1.1 0.0 RAT IS 51.0N 177.7E 309.0 26.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	46.8	55.0	1.30	5.44	5.56
GB-NM	53.5	149.1	1.10	5.71	5.75
YP-NV	47.9	170.0	1.00	5.75	5.75
YP2NV	47.9	231.0	1.10	5.96	6.00
YP4NV	47.9	244.0	0.90	5.87	5.82
YP3NV	47.9	218.0	1.00	5.86	5.86
OB2NV	47.8	59.0	1.20	5.43	5.51
OB3NV	47.8	57.0	1.30	5.47	5.59
RK-ON	52.2	92.0	0.40	5.18	4.78

349 4 SEP 77 22:18:35.3 0.0 RAT IS 51.8N 176.4E 310.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	47.4	5.1	0.70	4.17	4.02
GB-NM	54.1	10.3	0.80	4.43	4.33

350 4 SEP 77 23:20:48.0 0.0 RAT IS 51.0N 178.5E 308.9 54.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.3	165.0	1.80	6.06	6.31
YP4NV	47.4	430.0	1.40	6.32	6.47
YP3NV	47.4	386.0	1.50	6.32	6.50
YP-NV	47.4	352.0	1.30	6.18	6.29
YP2NV	47.4	411.0	1.30	6.25	6.36
OB2NV	47.3	128.0	1.60	5.89	6.10
OB3NV	47.3	130.0	1.60	5.90	6.10
RK-ON	51.8	272.8	0.50	5.68	5.38
HN-ME	67.5	113.0	1.20	5.64	5.72

351 5 SEP 77 0:58: 6.2 0.0 RAT IS 50.6N 177.7E 308.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.9	23.0	1.20	5.09	5.17
GB-NM	53.6	55.1	1.10	5.27	5.31

352 5 SEP 77 12:52:14.9 0.0 RAT IS 51.0N 177.8E 309.0 95.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.7	12.7	1.30	4.61	4.73
GB-NM	53.5	38.7	1.00	5.09	5.09
YP4NV	47.8	50.0	1.10	5.09	5.13
YP3NV	47.8	49.0	1.10	5.08	5.12
YP-NV	47.8	40.0	1.00	4.92	4.92
YP2NV	47.8	49.0	1.00	5.01	5.01
OB2NV	47.7	17.0	1.10	4.62	4.66
OB3NV	47.7	17.0	1.10	4.62	4.66
RK-ON	52.2	12.8	0.60	4.43	4.21

353 5 SEP 77 22:31: 6.2 0.0 RAT IS 51.1N 178.3E 309.0 58.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.4	4.6	0.50	3.86	3.55
GB-NM	53.1	22.1	0.80	4.72	4.63

354 6 SEP 77 6:48:31.0 0.0 ANDREANOF IS 51.2N 178.4W 308.8 75.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	44.3	7.8	0.50	3.90	3.60
GB-NM	51.1	12.6	1.00	4.58	4.58

355 8 SEP 77 6:36: 8.8 0.0 S. PERU 16.7S 70.5W 132.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	69.9	11.4	0.70	4.54	4.38
GB-NM	63.6	12.7	0.80	4.68	4.59
OB2NV	68.9	53.0	0.80	5.34	5.25
OB3NV	68.9	55.0	0.70	5.31	5.16
RK-ON	70.5	16.0	0.50	4.60	4.30

356 8 SEP 77 8: 3:53.8 0.0 MONA PASSAGE 18.5N 68.9W 101.0 102.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	45.5	21.0	0.80	4.48	4.39
GB-NM	38.2	12.7	0.70	4.37	4.21
OB2NV	45.1	82.0	0.80	5.04	4.94
OB3NV	45.1	71.0	1.00	5.06	5.06
RK-ON	37.8	41.7	0.80	4.93	4.83

357 9 SEP 77 2:35: 6.2 0.0 RUSSIA-CHINA BDR 43.0N 131.3E 316.5 565.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	78.0	99.1	0.70	4.77	4.61
GB-NM	84.2	150.8	1.00	5.28	5.28
OB2NV	79.1	125.0	0.90	4.96	4.91
OB3NV	79.1	111.0	0.90	4.91	4.86
RK-ON	78.3	385.2	0.60	5.32	5.09
HN-ME	89.6	101.0	0.90	5.35	5.30

** OMITTED **

358 9 SEP 77 15:58:50.6 0.0 S. ALASKA 62.0N 151.1W 330.2 48.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	31.5	10.4	0.70	4.19	4.04
OB2NV	32.8	24.0	0.90	4.68	4.64
OB3NV	32.8	25.0	0.80	4.66	4.56

359 9 SEP 77 21:17:59.2 0.0 RAT IS 50.9N 178.6E 308.7 70.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.2	33.1	0.80	4.80	4.7[illegible]
OB2NV	47.2	44.0	0.86	4.98	4.91
OB3NV	47.2	41.0	0.80	4.92	4.82
RK-CN	51.8	41.4	0.55	4.90	4.64

360 10 SEP 77 4:39: 5.6 0.0 PERU CST. 14.3S 76.1W 135.9 46.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	64.9	47.2	0.80	5.15	5.06
GB-NM	58.8	31.3	1.00	5.00	5.00
OB2NV	63.8	33.0	0.90	5.03	4.99
OB3NV	63.8	39.0	1.10	5.21	5.25
RK-ON	66.9	82.9	0.80	5.40	5.30

361 10 SEP 77 9:24: 2.2 0.0 TONGA IS 15.9S 174.7W 237.8 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	77.2	11.9	0.80	4.60	4.50
GB-NM	82.4	8.4	1.10	4.64	4.68

362 10 SEP 77 10:21: 9.1 0.0 GUATEMALA 14.1N 91.5W 129.8 31.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	32.8	207.5	1.10	5.75	5.79
YF4NV	31.7	269.0	1.35	5.99	6.12
YF3NV	31.7	314.0	1.25	6.00	6.10
YF-NV	31.7	228.0	1.30	5.89	6.00
YF2NV	31.7	277.0	1.25	5.95	6.04
OB2NV	31.8	100.0	1.20	5.47	5.55
OB3NV	31.8	98.0	1.25	5.49	5.59
HN-ME	37.6	495.0	1.00	5.96	5.96
RK-ON	36.8	177.6	0.84	5.46	5.39

363 10 SEP 77 16: 0: 0.5 0.0 LAKE BAIKAL REG 57.2N 106.8E 337.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	77.5	7.4	1.00	4.47	4.47
GB-NM	81.8	222.2	0.80	5.85	5.75

364 10 SEP 77 16:56:28.3 0.0 MEXICO 14.1N 92.1W 130.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	32.5	9.2	0.80	4.28	4.18
GB-NM	26.3	48.6	1.00	4.82	4.82

365 11 SEP 77 14: 8: 4.7 0.0 SAMOA IS 15.4S 172.8W 236.8 15.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	75.6	35.8	2.00	5.59	5.89
GB-NM	80.7	70.5	1.30	5.49	5.60

366 11 SEP 77 14:12:33.1 0.0 SAMOA IS 15.1S 172.8W 237.0 28.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	75.3	37.7	2.00	5.55	5.85
GB-NM	80.5	56.4	1.70	5.55	5.78

367 11 SEP 77 23:19:24.1 0.0 CRETE 35.1N 23.2E 32.8 18.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
HN-ME	66.4	170.0	1.25	5.97	6.07
RK-ON	77.8	239.7	0.90	5.89	5.84

368 12 SEP 77 16:48:45.3 0.0 KURILES 49.8N 155.1E 312.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	60.7	8.8	1.00	4.51	4.51
OB2NV	61.8	57.0	1.00	5.44	5.44
RK-ON	63.6	28.9	0.90	5.08	5.04

369 12 SEP 77 23:17:45.4 0.0 VIRGIN IS 19.5N 64.3W 96.5 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	48.5	11.0	0.70	4.46	4.31
GB-NM	41.1	11.9	1.00	4.28	4.28

370 12 SEP 77 23:16:52.7 0.0 E. SEA OF JAPAN 41.9N 138.3E 312.3 29.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	74.8	16.5	1.70	5.05	5.28
GB-NM	81.2	36.1	1.10	5.09	5.13
OB2NV	75.8	27.0	1.20	5.07	5.14
RK-CN	76.8	41.7	1.00	5.13	5.13

371 13 SEP 77 0:21:49.3 0.0 TONGA IS 15.4S 173.3W 237.2 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	75.9	110.0	2.00	6.14	6.44
GB-NM	81.1	171.2	1.80	6.18	6.43
YP-NV	75.2	111.0	1.60	5.91	6.12
YP2NV	75.2	155.2	1.56	6.04	6.23
YP4NV	75.2	145.0	1.50	5.98	6.16
OB2NV	75.2	66.0	1.80	5.77	6.03

372 13 SEP 77 3:33: 8.6 0.0 SAMOA IS. 15.3S 172.9W 237.0 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	75.6	7.4	0.70	4.30	4.14
GB-NM	80.7	10.4	1.10	4.56	4.60

373 13 SEP 77 3:59:42.0 0.0 SAMOA IS 15.4S 172.9W 236.9 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	75.6	40.0	1.50	5.46	5.64
GB-NM	80.8	43.9	1.20	5.26	5.34

374 13 SEP 77 4:55:32.3 0.0 JAPAN 41.5N 142.3E 310.1 82.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	72.7	11.9	0.70	4.30	4.15
GB-NM	79.3	24.2	0.80	4.63	4.54
OB2NV	73.7	16.0	0.80	4.46	4.37
RK-ON	75.6	13.9	0.65	4.34	4.15

375 13 SEP 77 5:36: 7.7 0.0 CHILE-ARGENTINA BDR 23.1S 67.4W 134.4 217.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	76.8	32.0	0.80	4.62	4.53
GB-NM	70.6	34.2	1.00	4.74	4.74
OB2NV	75.7	31.0	1.00	4.69	4.69

376 13 SEP 77 14:38:34.7 0.0 RAT IS 51.2N 177.4E 309.3 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	46.9	9.7	1.00	4.58	4.58
GB-NM	53.6	16.9	0.70	4.56	4.40
OB2NV	47.9	12.0	1.10	4.75	4.79
RK-ON	52.3	36.4	0.40	4.75	4.36

377 16 SEP 77 23:48: 7.3 0.0 AUSTRIA 46.3N 13.1E 32.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	83.7	40.0	0.80	5.22	5.12
GB-NM	81.3	34.8	1.30	5.27	5.38

378 17 SEP 77 10:46:53.1 0.0 BONIN IS. 28.7N 140.4E 300.7 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	81.8	16.1	1.30	4.98	5.09
YP4NV	82.8	112.0	0.90	5.69	5.6[illegible]
YP-NV	82.8	100.0	0.90	5.64	5.60
YP2NV	82.8	97.0	0.90	5.63	5.58
OB2NV	82.7	62.0	0.90	5.42	5.38
OB3NV	82.7	103.0	0.90	5.64	5.60

379 17 SEP 77 16:28:48.4 0.0 ALEUTIANS 50.0N 173.8W 306.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	41.6	73.9	0.70	4.94	4.78
OB2NV	42.5	63.0	0.90	4.96	4.91
OB3NV	42.5	104.0	0.85	5.16	5.09
RK-ON	48.4	50.3	1.00	5.26	5.26

380 18 SEP 77 5:44: 7.5 0.0 EL SALVADOR 13.7N 89.9W 128.0 65.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	34.1	125.0	0.80	5.36	5.26
GB-NM	27.7	58.2	0.90	4.87	4.82
YP4NV	33.0	138.0	1.00	5.48	5.48
YP-NV	33.0	132.0	1.00	5.46	5.46
YP2NV	33.0	150.0	1.00	5.51	5.51
OB2NV	33.1	67.0	1.00	5.16	5.16
OB3NV	33.1	87.0	1.00	5.28	5.28
RK-ON	37.3	303.9	0.70	5.68	5.53

381 18 SEP 77 18:21:23.4 0.0 CHILE CST 29.7S 71.2W 141.3 22.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	80.2	73.9	1.40	5.51	5.66
GB-NM	74.5	99.3	1.30	5.65	5.76

382 21 SEP 77 3:12:31.0 0.0 E. SEA OF JAPAN 44.0N 137.0E 314.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	74.2	12.8	1.70	5.00	5.23
GB-NM	80.5	6.6	1.00	4.27	4.27

383 21 SEP 77 16: 5: 5.0 0.0 VENEZUELA CST 9.0N 62.0W 105.6 0.

STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
PA-NV	56.7	15.4	1.50	4.99	5.16
GB-NM	49.3	14.4	1.30	4.82	4.94

384 21 SEP 77 17:39:24.0 0.0 E. CST KAMCHATKA 54.0N 161.0E 315.8 0.

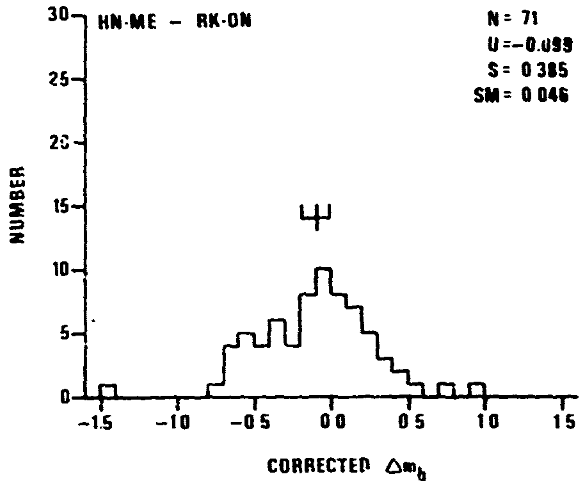
STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	55.7	36.9	1.80	5.50	5.76
GB-NM	62.0	67.3	1.50	5.83	6.00

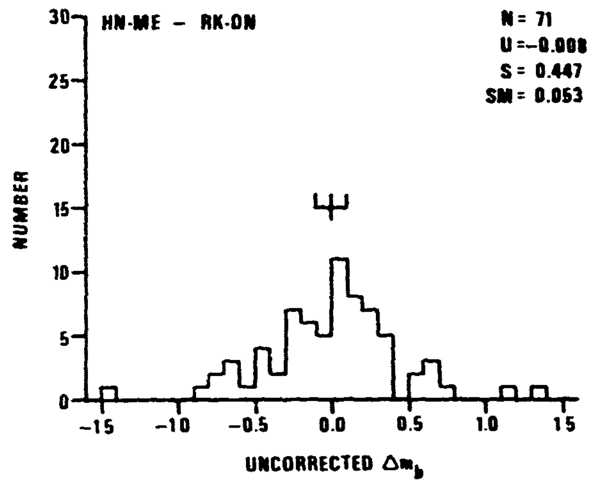
385 23 SEP 77 11:47: 4.0 0.0 ALASKA PEN. 55.0N 157.0W 316.2 0.

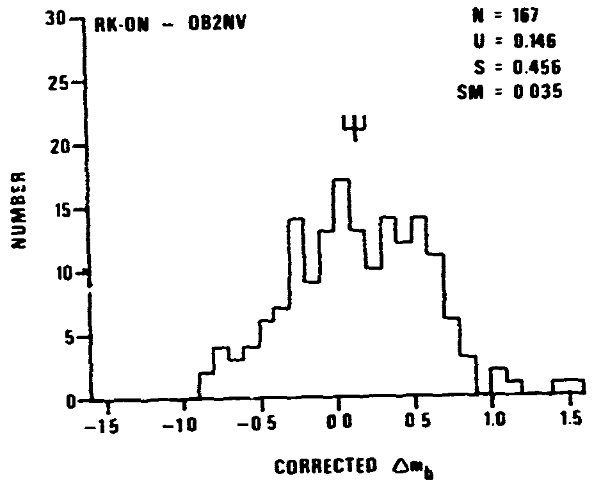
STA	DIST	AMP	T	LOG10(A/MT) + B MB	LOG10(A/M) + B MB
FA-NV	31.7	7.1	0.80	4.17	4.07
GB-NM	38.1	8.8	0.80	4.05	3.95

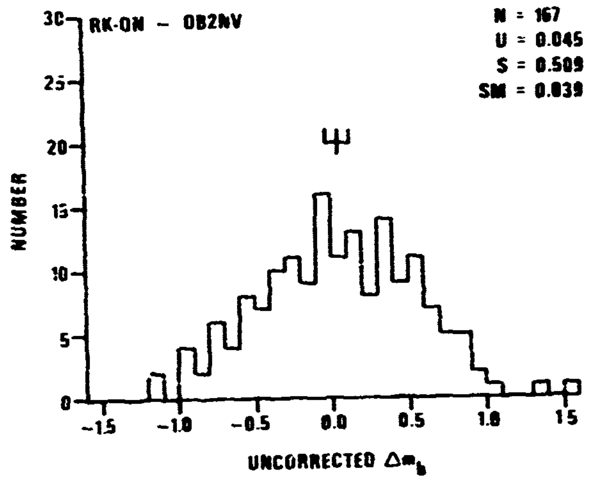
APPENDIX B

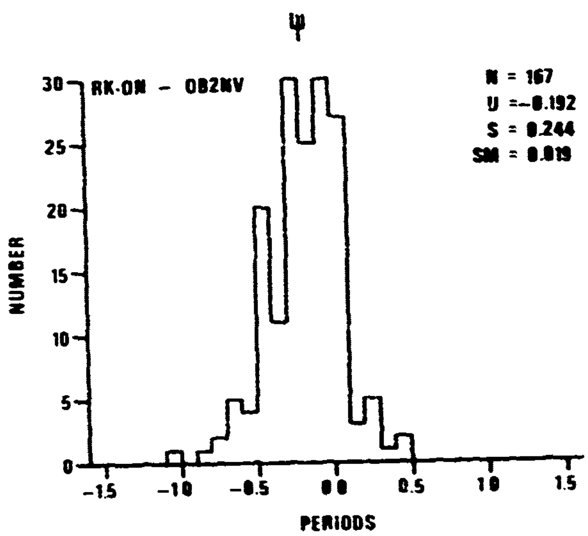
Histograms of body wave magnitude differentials, Δm_b and $\Delta m'_a$ and dominant period differentials for the events in Appendix A.

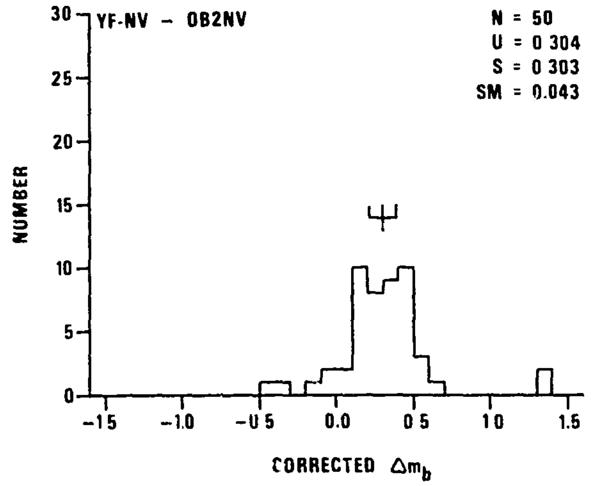

HN-ME – RK-ON
N = 71
U =-0.099
S = 0.385
SM = 0.046
NUMBER
CORRECTED Δm_b


HN-ME – RK-ON
N = 71
U =-0.008
S = 0.447
SM = 0.053
NUMBER
UNCORRECTED Δm_b

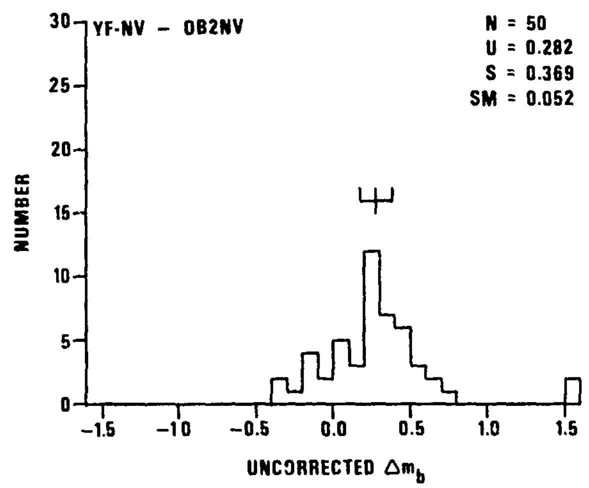

RK-ON – OB2NV
N = 167
U = 0.146
S = 0.456
SM = 0.035
NUMBER
CORRECTED Δm_b


RK-ON – OB2NV
N = 167
U = 0.045
S = 0.509
SM = 0.039
NUMBER
UNCORRECTED Δm_b

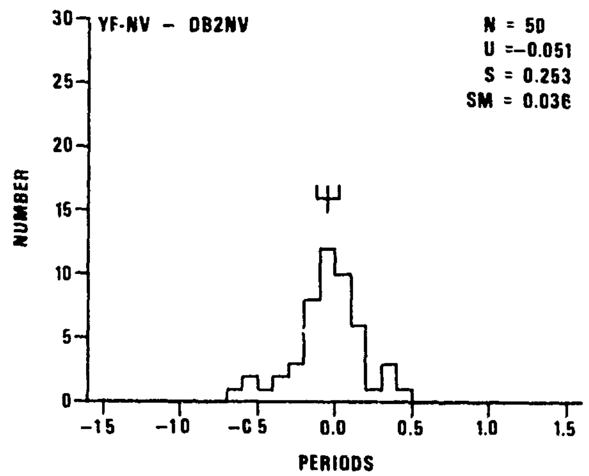

RK-ON – OB2NV
N = 167
U = -0.192
S = 0.244
SM = 0.019
NUMBER
PERIODS



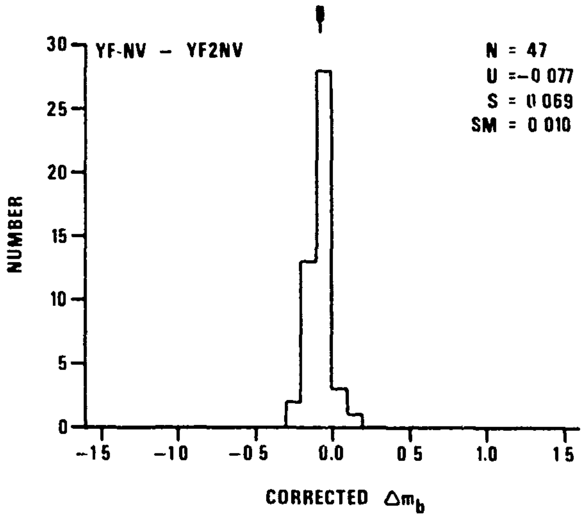
YF-NV – OB2NV
N = 50
U = 0 304
S = 0 303
SM = 0.043
NUMBER
CORRECTED Δmb

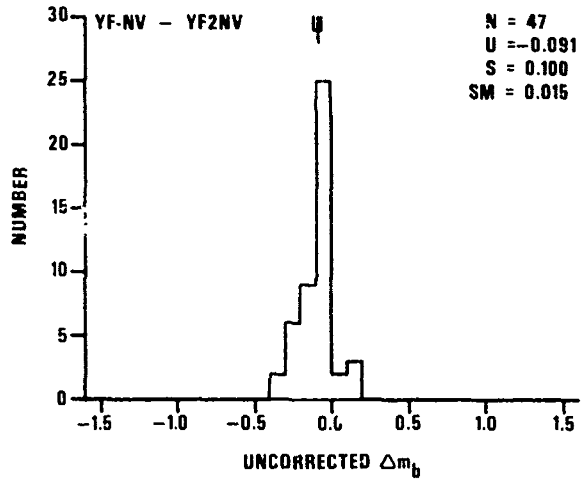


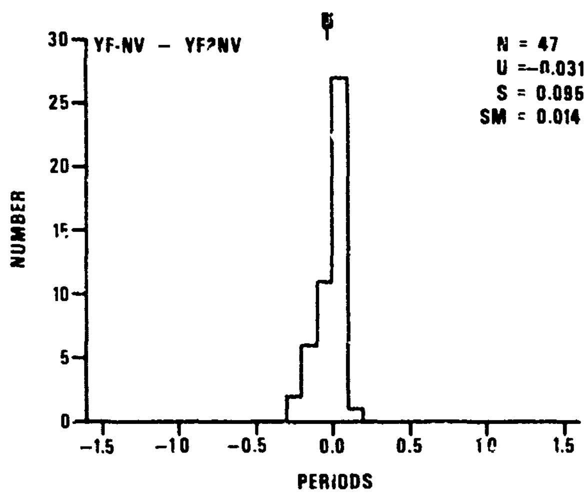
YF-NV – OB2NV
N = 50
U = 0.282
S = 0.369
SM = 0.052
NUMBER
UNCORRECTED Δmb

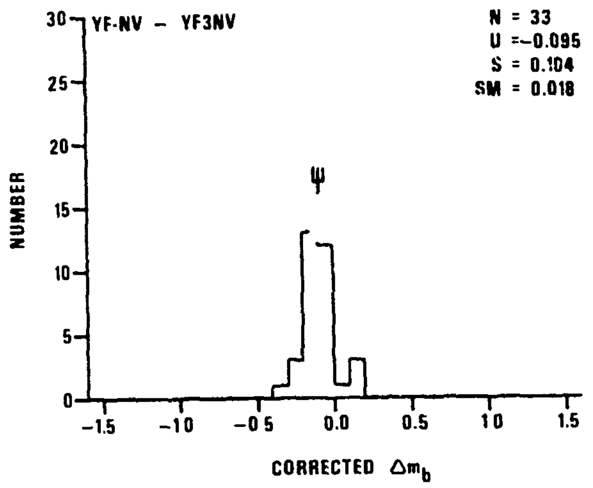


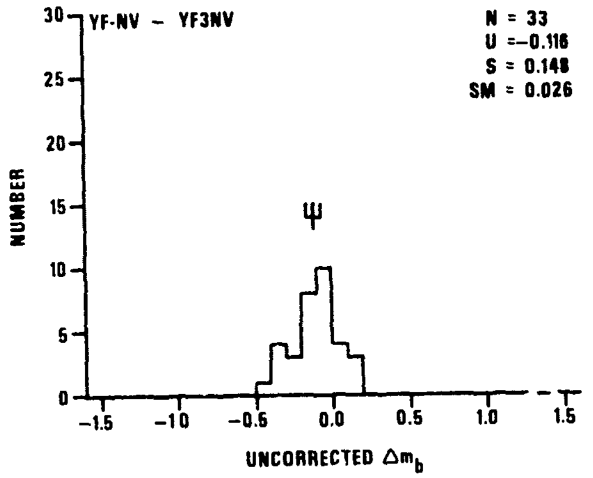
YF-NV – OB2NV
N = 50
U =–0.051
S = 0.253
SM = 0.036
NUMBER
PERIODS

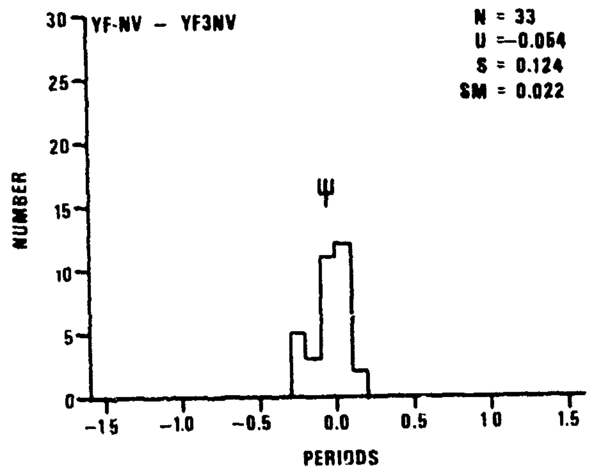

YF-NV – YF2NV
N = 47
U =-0 077
S = 0 069
SM = 0 010
NUMBER
30
25
20
15
10
5
0
-1 5
-1 0
-0 5
0.0
0 5
1.0
1 5
CORRECTED Δm_b

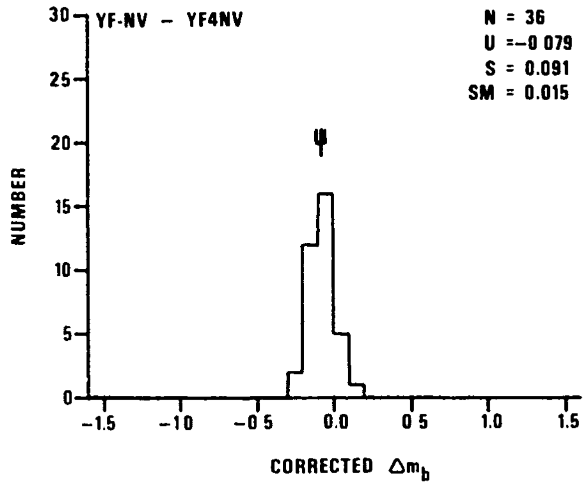

YF-NV – YF2NV
N = 47
U =-0.091
S = 0.100
SM = 0.015
NUMBER
30
25
20
15
10
5
0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
UNCORRECTED Δm_b

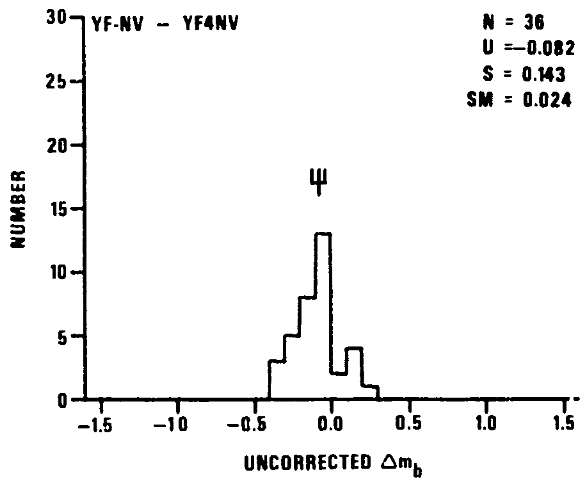

YF-NV – YF2NV
N = 47
U =-0.031
S = 0.096
SM = 0.014
NUMBER
30
25
20
10
5
0
-1.5
-1.0
-0.5
0.0
0.5
1.5
PERIODS

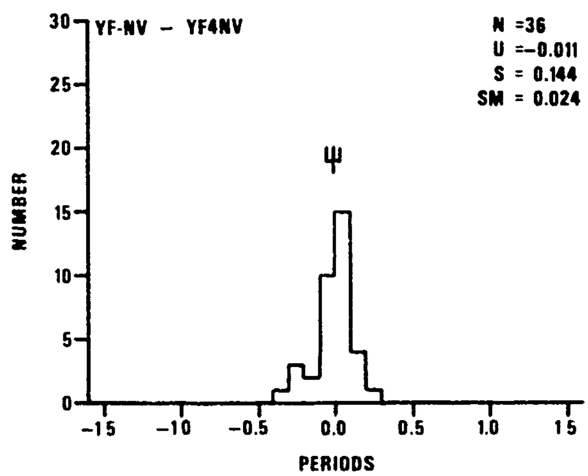

YF-NV – YF3NV
N = 33
U =–0.095
S = 0.104
SM = 0.018
NUMBER
CORRECTED Δm_b

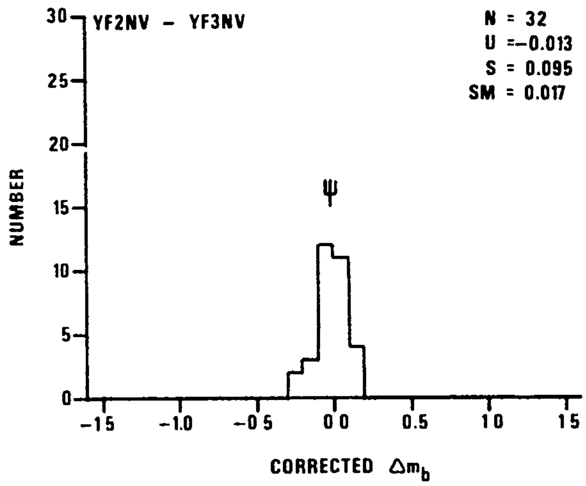

YF-NV – YF3NV
N = 33
U =–0.116
S = 0.148
SM = 0.026
NUMBER
UNCORRECTED Δm_b


YF-NV – YF3NV
N = 33
U =–0.054
S = 0.124
SM = 0.022
NUMBER
PERIODS

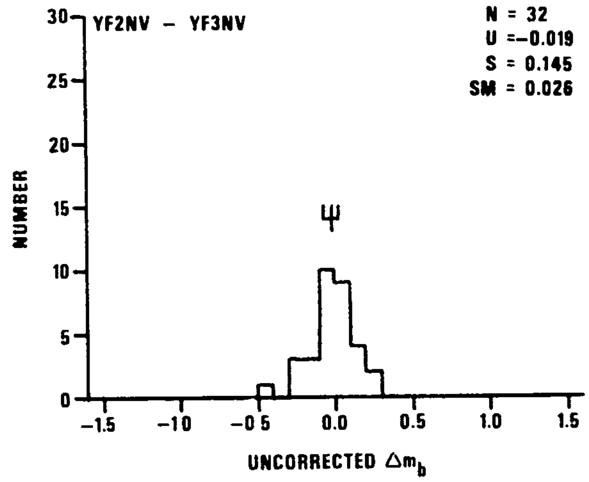

YF-NV – YF4NV
N = 36
U =-0 079
S = 0.091
SM = 0.015
NUMBER
30
25
20
15
10
5
0
-1.5
-1 0
-0 5
0.0
0 5
1.0
1.5
CORRECTED Δm_b


YF-NV – YF4NV
N = 36
U =-0.082
S = 0.143
SM = 0.024
NUMBER
30
25
20
15
10
5
0
-1.5
-1 0
-0.5
0.0
0.5
1.0
1.5
UNCORRECTED Δm_b

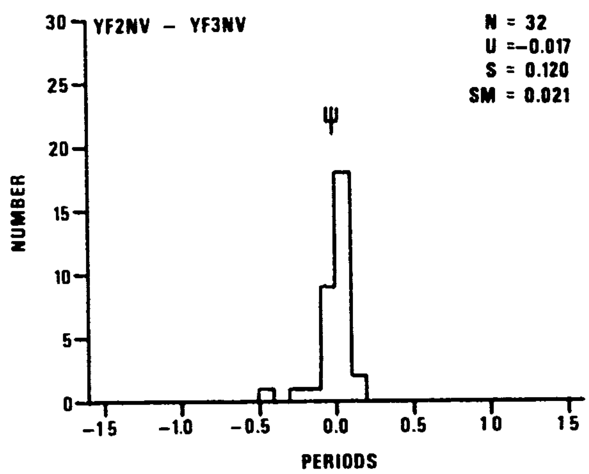

YF-NV – YF4NV
N =36
U =-0.011
S = 0.144
SM = 0.024
NUMBER
30
25
20
15
10
5
0
-1 5
-1 0
-0.5
0.0
0.5
1.0
1 5
PERIODS



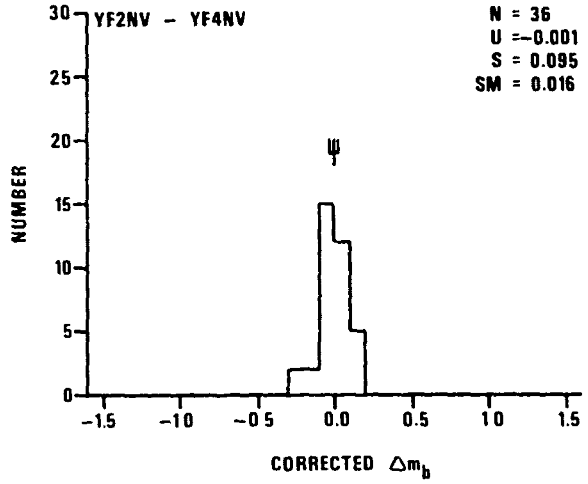
YF2NV - YF3NV
N = 32
U =-0.013
S = 0.095
SM = 0.017
NUMBER
30
25
20
15
10
5
0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
CORRECTED Δm_b

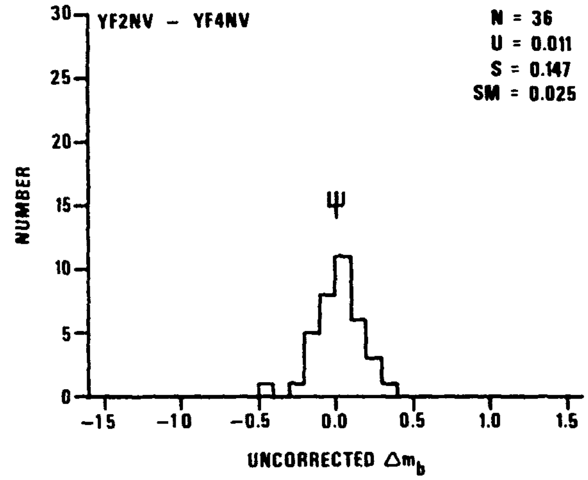


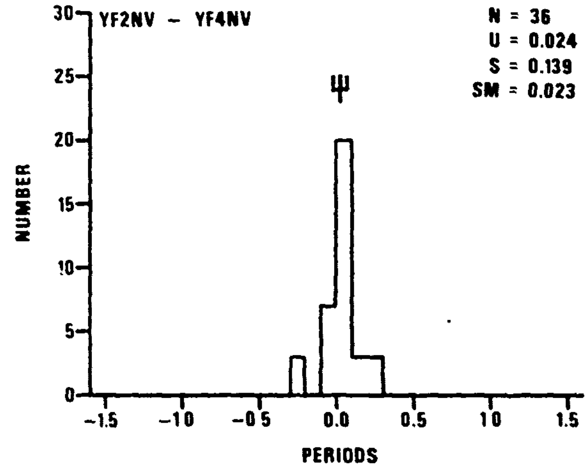
YF2NV - YF3NV
N = 32
U =-0.019
S = 0.145
SM = 0.026
NUMBER
30
25
20
15
10
5
0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
UNCORRECTED Δm_b

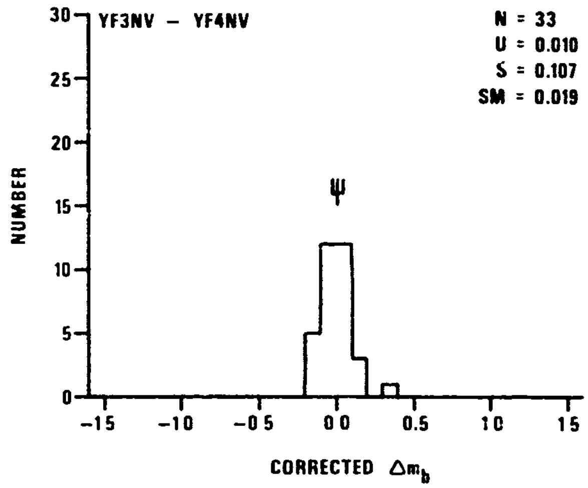


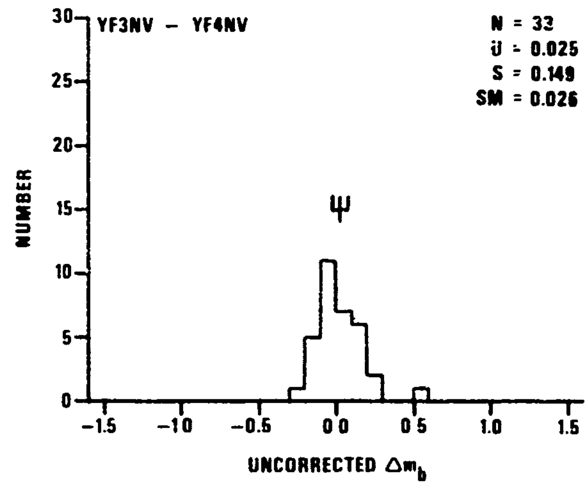
YF2NV - YF3NV
N = 32
U =-0.017
S = 0.120
SM = 0.021
NUMBER
30
25
20
15
10
5
0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
PERIODS

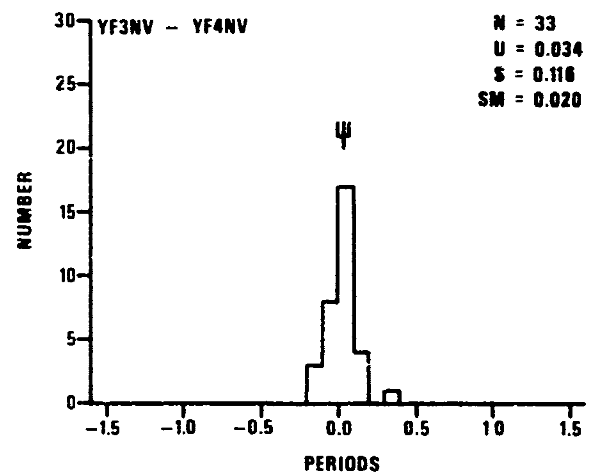

YF2NV - YF4NV
N = 36
U =-0.001
S = 0.095
SM = 0.016
NUMBER
CORRECTED Δm_b

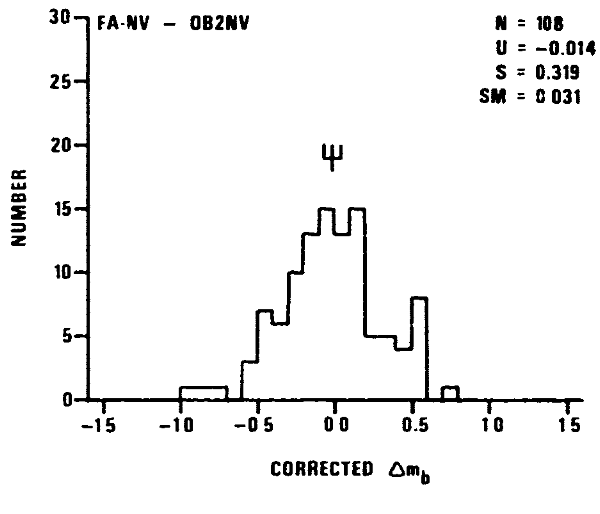

YF2NV - YF4NV
N = 36
U = 0.011
S = 0.147
SM = 0.025
NUMBER
UNCORRECTED Δm_b

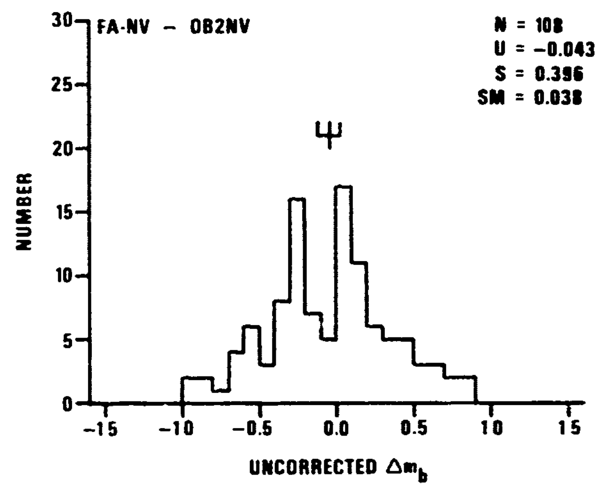

YF2NV - YF4NV
N = 36
U = 0.024
S = 0.139
SM = 0.023
NUMBER
PERIODS

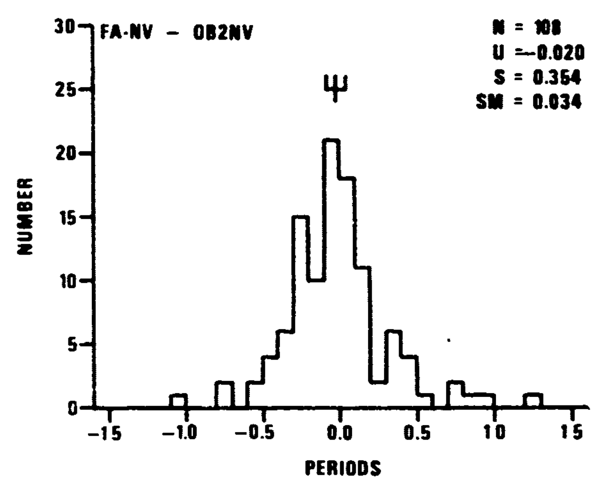

YF3NV – YF4NV
N = 33
U = 0.010
S = 0.107
SM = 0.019
NUMBER
CORRECTED Δm_b

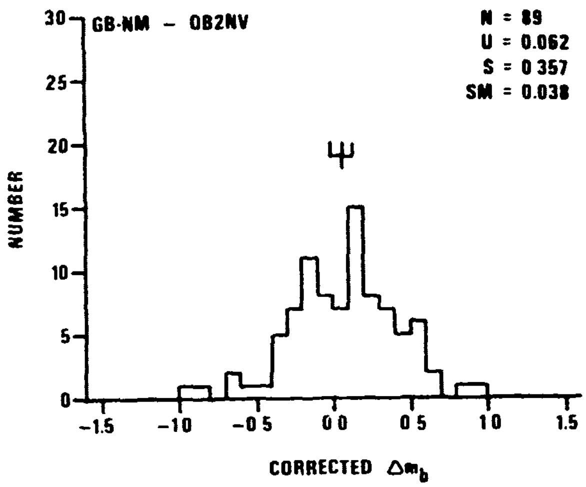

YF3NV – YF4NV
N = 33
U = 0.025
S = 0.149
SM = 0.026
NUMBER
UNCORRECTED Δm_b

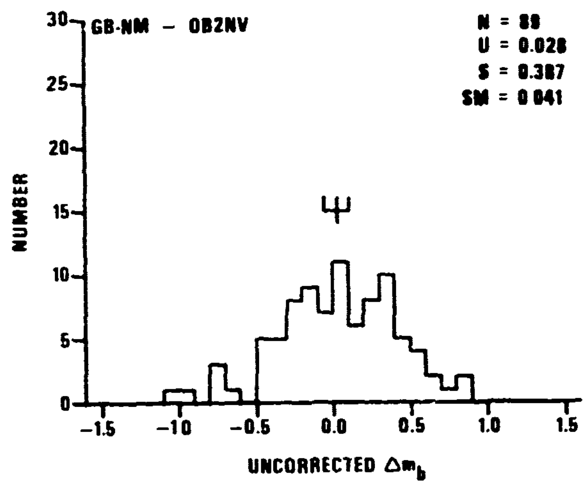

YF3NV – YF4NV
N = 33
U = 0.034
S = 0.116
SM = 0.020
NUMBER
PERIODS

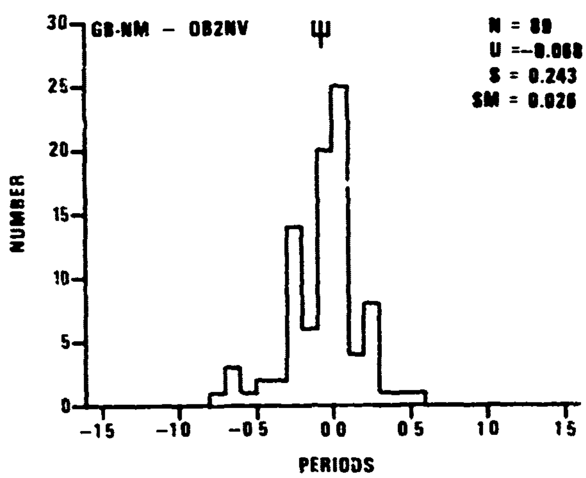

FA-NV – OB2NV
N = 108
U = −0.014
S = 0.319
SM = 0.031
NUMBER
CORRECTED Δm_b

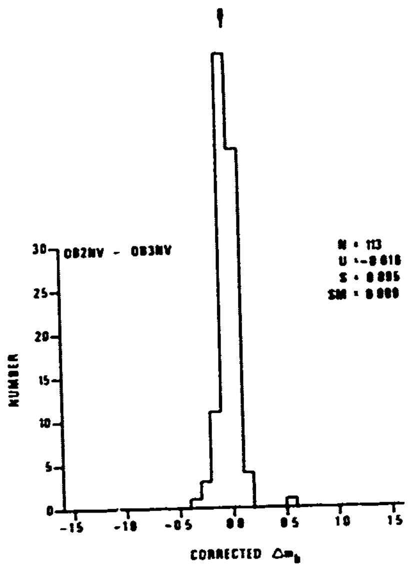

FA-NV – OB2NV
N = 108
U = −0.043
S = 0.396
SM = 0.038
NUMBER
UNCORRECTED Δm_b

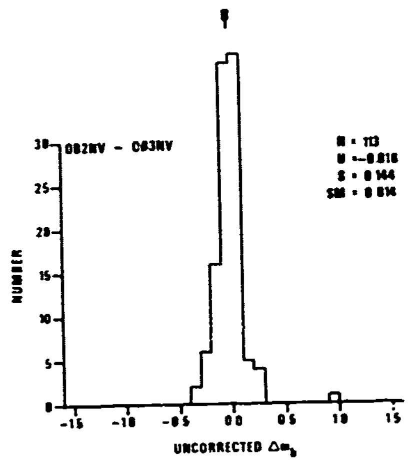

FA-NV – OB2NV
N = 108
U = −0.020
S = 0.354
SM = 0.034
NUMBER
PERIODS

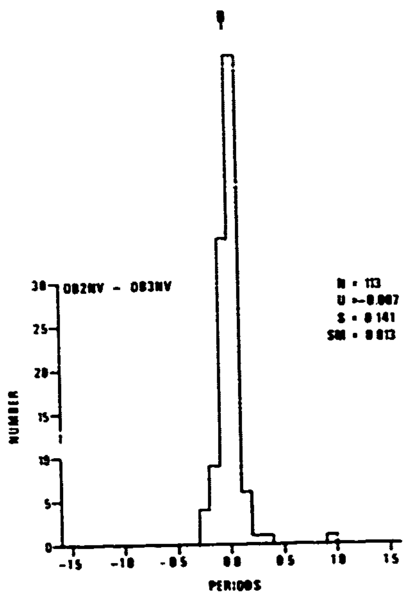

GB-NM – OB2NV
N = 89
U = 0.062
S = 0 357
SM = 0.038
NUMBER
CORRECTED Δm_b


GB-NM – OB2NV
N = 89
U = 0.028
S = 0.387
SM = 0 041
NUMBER
UNCORRECTED Δm_b


GB-NM – OB2NV
N = 89
S = 0.243
SM = 0.026
NUMBER
PERIODS

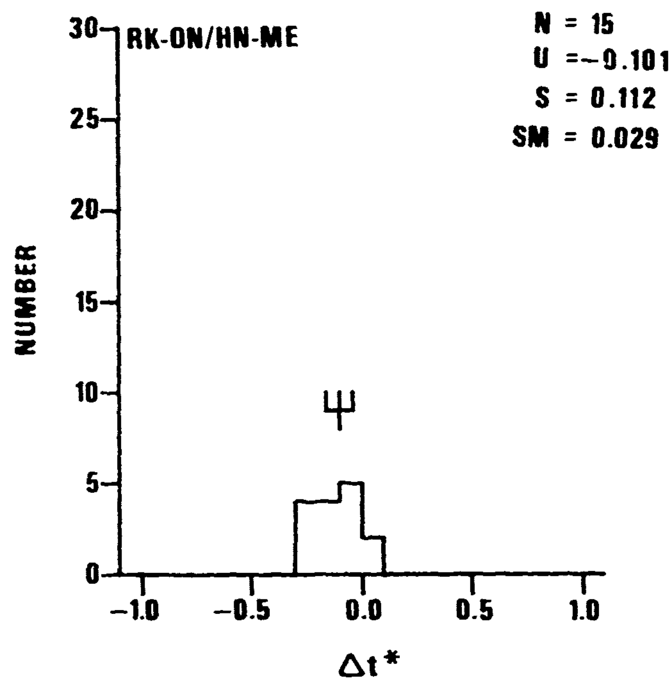

OB2NV - OB3NV
N = 113
NUMBER
CORRECTED Δm_b

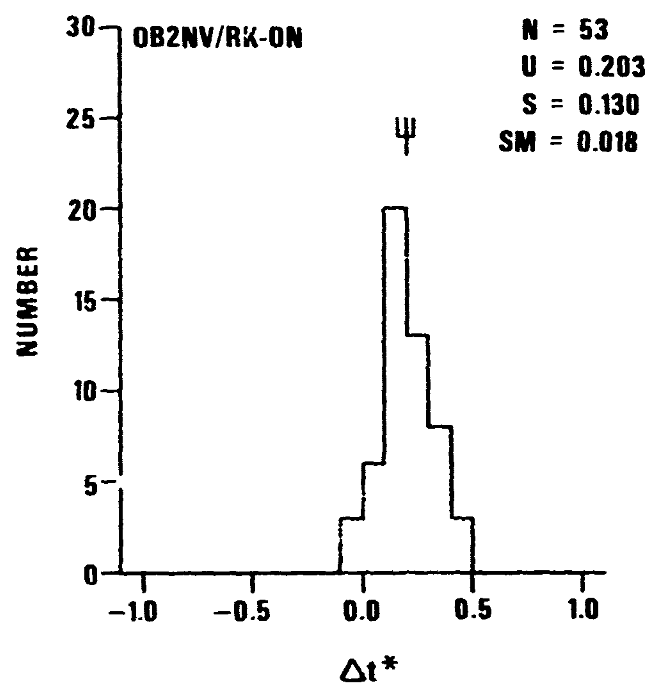

OB2NV - OB3NV
N = 113
NUMBER
UNCORRECTED Δm_b

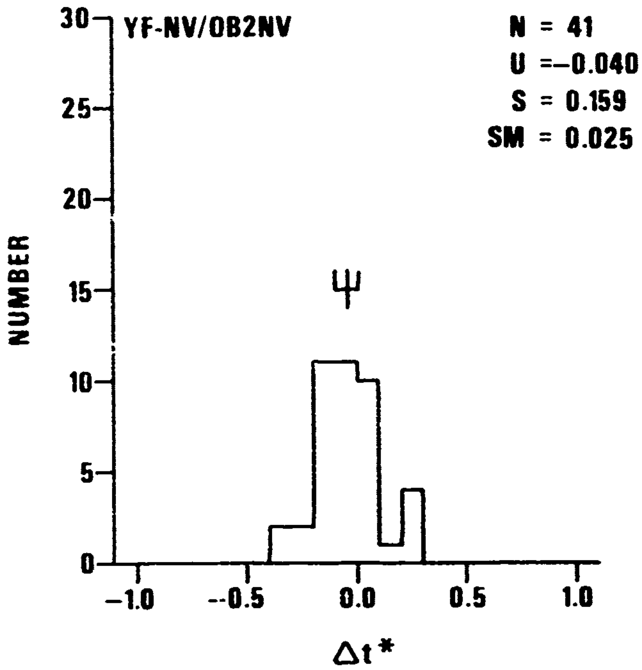

OB2NV - OB3NV
N = 113
S = 0.141
NUMBER
PERIODS

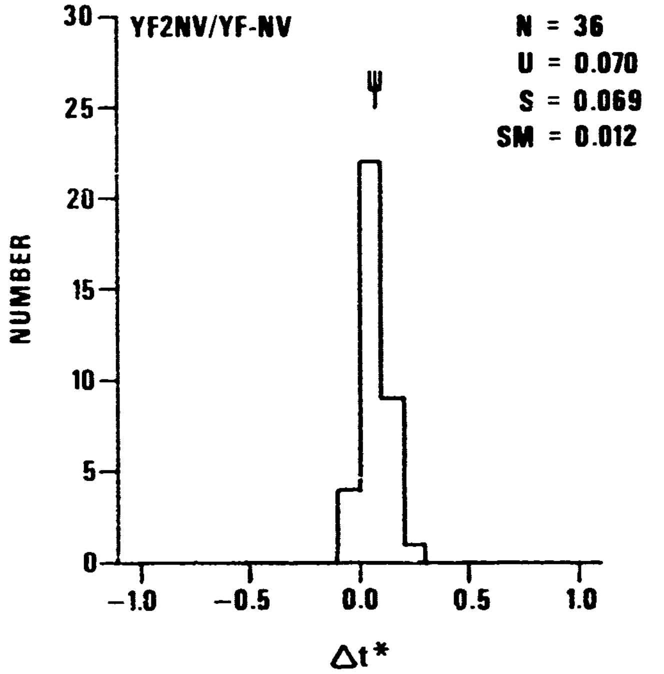
APPENDIX C

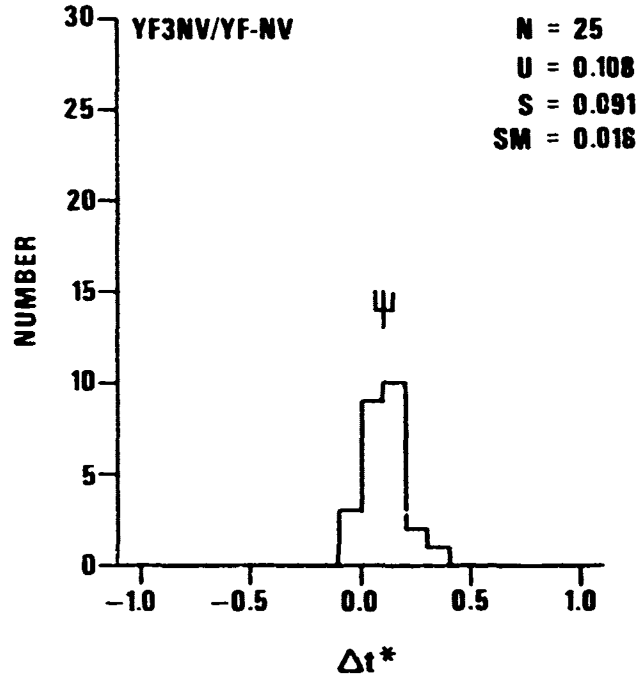
Histograms and table of Δt^* values for selected station pairs.

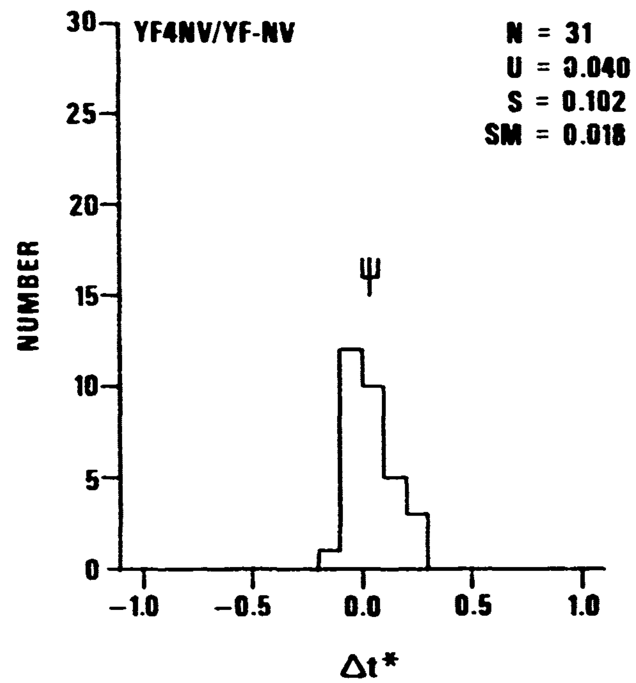

RK-ON/HN-ME
N = 15
U =−0.101
S = 0.112
SM = 0.029
NUMBER
Δt*

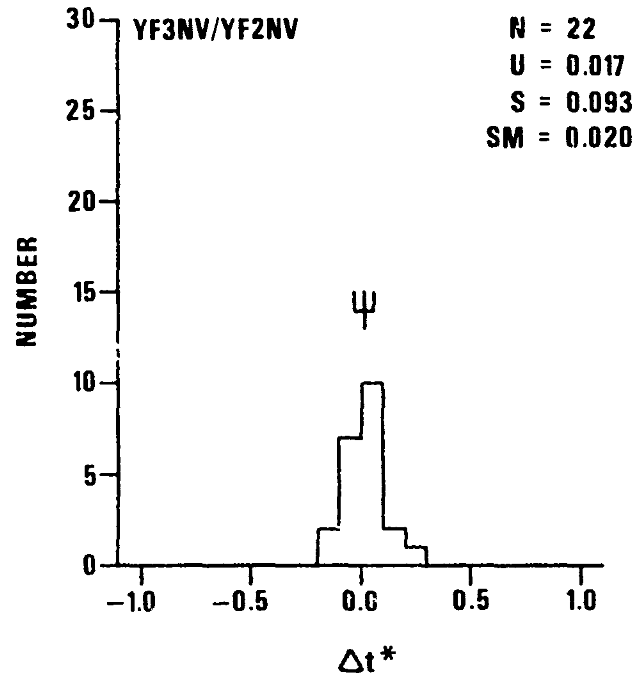

OB2NV/RK-ON
N = 53
U = 0.203
S = 0.130
SM = 0.018
NUMBER
Δt*

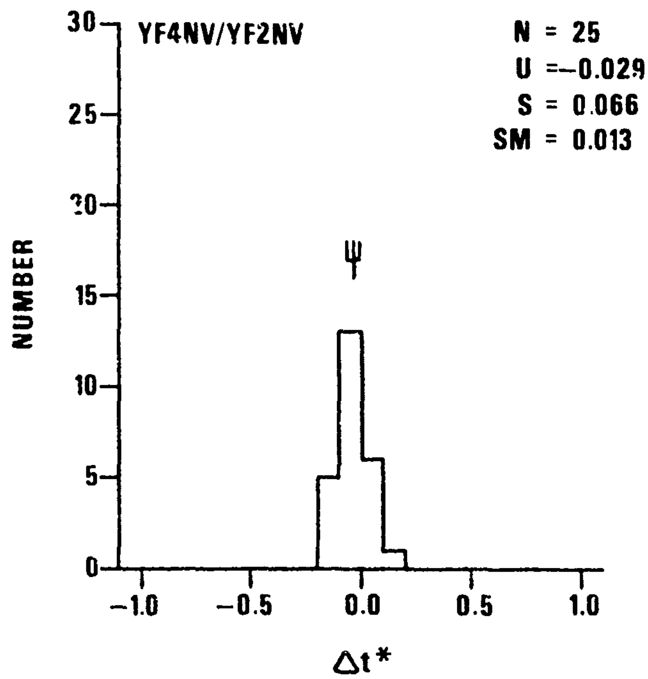

YF-NV/OB2NV
N = 41
U =–0.040
S = 0.159
SM = 0.025
NUMBER
Δt*

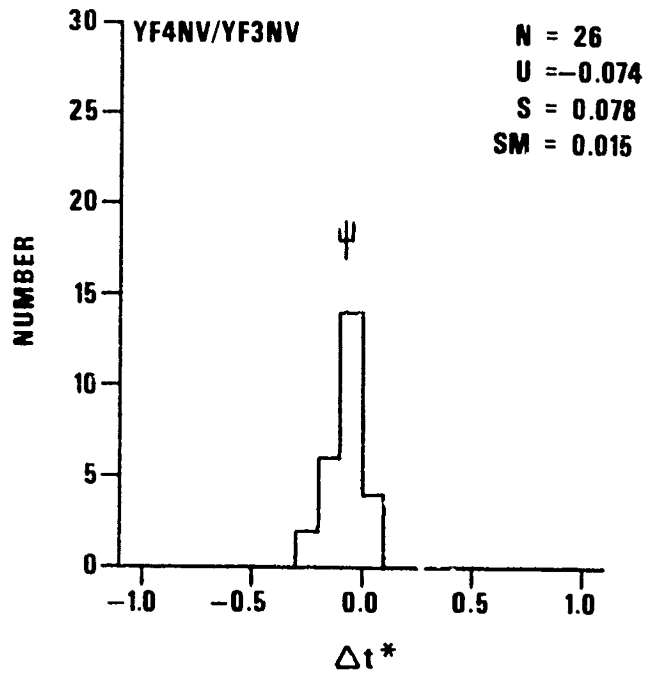

YF2NV/YF-NV
N = 36
U = 0.070
S = 0.069
SM = 0.012
NUMBER
Δt*

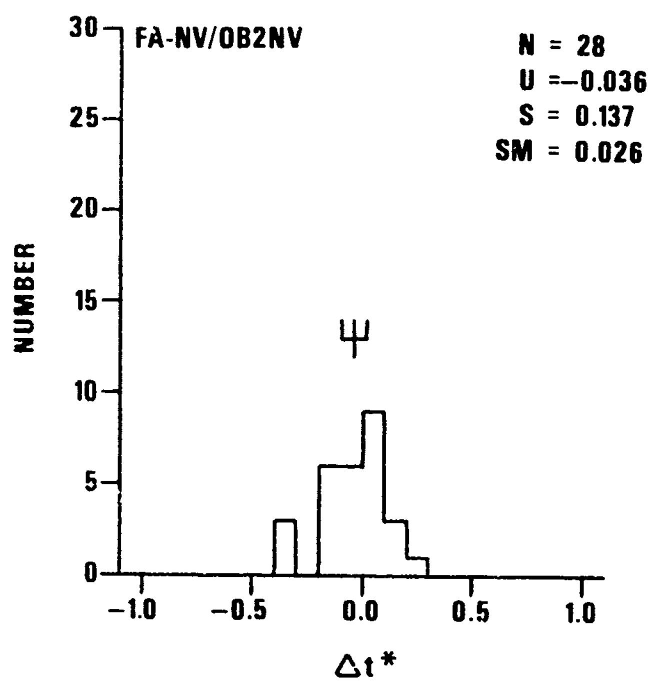

YF3NV/YF-NV
N = 25
U = 0.108
S = 0.091
SM = 0.018
NUMBER
30
25
20
15
10
5
0
−1.0
−0.5
0.0
0.5
1.0
Δt*

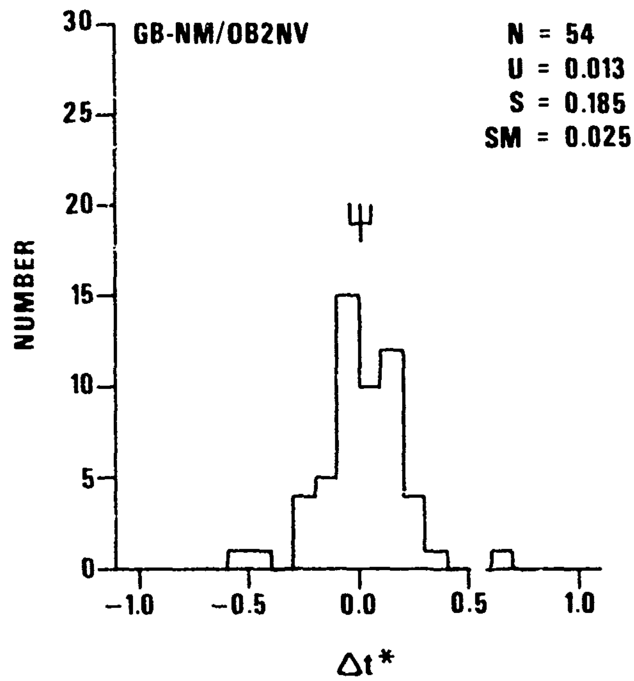

YF4NV/YF-NV
N = 31
U = 0.040
S = 0.102
SM = 0.018
NUMBER
30
25
20
15
10
5
0
−1.0
−0.5
0.0
0.5
1.0
Δt*


YF3NV/YF2NV
N = 22
U = 0.017
S = 0.093
SM = 0.020
NUMBER
0
5
10
15
20
25
30
−1.0
−0.5
0.0
0.5
1.0
Δt*

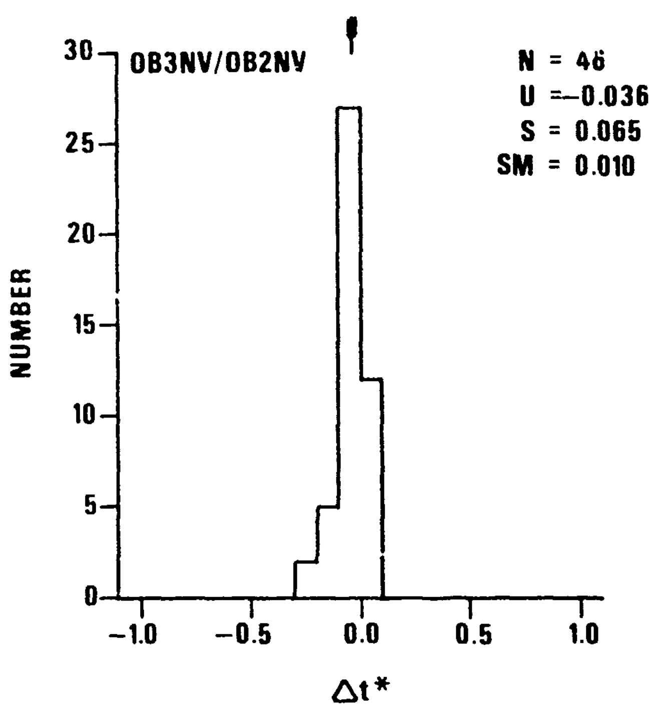

YF4NV/YF2NV
N = 25
U =−0.029
S = 0.066
SM = 0.013
NUMBER
0
5
10
15
20
25
30
−1.0
−0.5
0.0
0.5
1.0
Δt*


YF4NV/YF3NV
N = 26
U =–0.074
S = 0.078
SM = 0.015
NUMBER
0
5
10
15
20
25
30
–1.0
–0.5
0.0
0.5
1.0
Δt*


FA-NV/OB2NV
N = 28
U =–0.036
S = 0.137
SM = 0.026
NUMBER
0
5
10
15
20
25
30
–1.0
–0.5
0.0
0.5
1.0
Δt*



GB-NM/OB2NV
N = 54
U = 0.013
S = 0.185
SM = 0.025
NUMBER
30
25
20
15
10
5
0
−1.0
−0.5
0.0
0.5
1.0
Δt*



OB3NV/OB2NV
N = 46
U =−0.036
S = 0.065
SM = 0.010
NUMBER
30
25
20
15
10
5
0
−1.0
−0.5
0.0
0.5
1.0
Δt*

```
 5APR77  7 34 58.1
OB2NV RK-ON  0.380

13APR77 18 20 38.3
OB2NV RK-ON  0.192

15APR77 23 35 38.9
OB2NV RK-ON  0.170

22APR77  0 52  5.2
OB2NV RK-ON  0.303

23APR77 14 49  5.7
YF-NV OB2NV -0.013
OB2NV RK-ON  0.242

 5JUN77  2 46  6.8
FA-NV OB2NV  0.040
YF4NV YF-NV -0.059
YF4NV YF2NV -0.117
YF4NV YF3NV -0.048
YF3NV YF-NV  0.061
YF3NV YF2NV -0.058
YF2NV YF-NV  0.020
YF-NV OB2NV -0.034
OB3NV OB2NV -0.048
OB2NV RK-ON  0.162
RK-ON HN-ME -0.160

 5JUN77  6 41 17.9
YF4NV YF-NV  0.006
YF4NV YF2NV -0.060
YF4NV YF3NV -0.052
YF3NV YF-NV  0.091
YF3NV YF2NV  0.025
YF2NV YF-NV  0.086
YF-NV OB2NV -0.035
OB3NV OB2NV  0.007
OB2NV RK-ON  0.015

25JUL77  4 51 37.7
YF4NV YF-NV  0.213
YF4NV YF2NV  0.027
YF4NV YF3NV  0.079
YF3NV YF-NV  0.111
YF3NV YF2NV -0.052
YF2NV YF-NV  0.186
YF-NV OB2NV  0.091
OB3NV OB2NV -0.069
OB2NV RK-ON -0.072

25MAY77 12  9 58.4
YF2NV YF-NV  0.079
YF-NV OB2NV  0.034
OB3NV OB2NV -0.029

14MAY77  6 58 51.8
OB3NV OB2NV -0.069
OB2NV RK-ON  0.024

15MAY77  0 21  4.1
OB3NV OB2NV -0.071
OB2NV RK-ON -0.061
RK-ON HN-ME  0.054

15MAY77 15 50 44.1
OB3NV OB2NV -0.036
OB2NV RK-ON  0.360

 2JUN77 16 50 36.1
YF4NV YF-NV  0.026
YF4NV YF2NV -0.114
YF4NV YF3NV  0.016
YF3NV YF-NV -0.009
YF3NV YF2NV -0.133
YF2NV YF-NV  0.099
YF-NV OB2NV  0.059
OB3NV OB2NV -0.051
OB2NV RK-ON  0.327

17JUN77 14 45 11.5
FA-NV OB2NV -0.062
YF2NV YF-NV  0.144
YF-NV OB2NV  0.037
OB3NV OB2NV -0.016

 8JUN77 13 25 16.0
FA-NV OB2NV  0.136
GB-NM OB2NV  0.075
YF4NV YF-NV -0.083
YF4NV YF3NV -0.251
YF3NV YF-NV  0.147
YF-NV OB2NV  0.067

 8JUN77 14 25 49.0
YF4NV YF-NV  0.206
YF4NV YF3NV -0.059
YF3NV YF-NV  0.193
YF-NV OB2NV  0.010
OB3NV OB2NV -0.025

30MAY77 10 20  2.8
YF4NV YF-NV -0.034
YF4NV YF3NV -0.116
YF3NV YF-NV  0.082
YF-NV OB2NV -0.062
OB3NV OB2NV  0.014

30MAY77 15 16  5.1
GB-NM OB2NV  0.056
YF4NV YF-NV  0.042
YF4NV YF2NV -0.049
YF4NV YF3NV -0.052
YF3NV YF-NV  0.040
YF3NV YF2NV  0.006
YF2NV YF-NV  0.059
YF-NV OB2NV -0.145
OB3NV OB2NV  0.092
OB2NV RK-ON -0.043
RK-ON HN-ME  0.041

17JUN77  2 29 22.3
YF4NV YF-NV  0.091
YF4NV YF2NV -0.019
YF4NV YF3NV -0.044
YF3NV YF-NV  0.156
YF3NV YF2NV  0.032
YF2NV YF-NV  0.099

21JUN77  8 58 22.3
GB-NM OB2NV  0.318
YF2NV YF-NV  0.139
YF-NV OB2NV  0.295
OB3NV OB2NV -0.104

22JUN77  7 11 30.2
YF2NV YF-NV  0.116
YF-NV OB2NV -0.162
OB3NV OB2NV -0.098
OB2NV RK-ON  0.208

22JUN77  8 50 31.2
GB-NM OB2NV -0.026
YF2NV YF-NV  0.053
YF-NV OB2NV -0.047
OB3NV OB2NV -0.105
OB2NV RK-ON  0.186

19JUL77  6 35 35.7
OB2NV RK-ON  0.132

20JUL77 10 36 28.0
YF4NV YF-NV -0.017
YF4NV YF2NV -0.009
YF4NV YF3NV -0.160
YF3NV YF-NV  0.229
YF3NV YF2NV  0.083
YF2NV YF-NV  0.010
YF-NV OB2NV -0.037
OB3NV OB2NV -0.235

24JUL77  6 23 18.2
GB-NM OB2NV -0.033
FA-NV OB2NV -0.333
YF2NV YF-NV -0.055
YF-NV OB2NV  0.087
OB3NV OB2NV -0.109

20JUL77 13 24 21.1
RK-ON HN-ME -0.044

30JUL77  5 45 49.1
GB-NM OB2NV -0.056
FA-NV OB2NV -0.111
OB3NV OB2NV -0.116

12JUN77  8 48  5.1
FA-NV OB2NV -0.101
YF2NV YF-NV  0.018
YF-NV OB2NV -0.076
OB3NV OB2NV -0.023
OB2NV RK-ON  0.255

 7AUG77 23 26 55.0
GB-NM OB2NV -0.033
FA-NV OB2NV -0.044
YF4NV YF-NV  0.130
YF4NV YF2NV -0.034
YF4NV YF3NV -0.007
YF3NV YF-NV  0.137
YF3NV YF2NV -0.030
YF2NV YF-NV  0.167
YF-NV OB2NV -0.183
```

```
OB3NV OB2NV -0.022
OB2NV RK-ON  0.183

14AUG77 23 49 15.7
YF4NV YF-NV  0.065
YF4NV YF2NV -0.087
YF2NV YF-NV  0.182
YF-NV OB2NV -0.173
OB2NV RK-ON  0.388

15AUG77  5 41  9.3
YF4NV YF-NV -0.062
YF4NV YF2NV -0.131
YF4NV YF3NV -0.047
YF3NV YF-NV -0.014
YF3NV YF2NV  0.027
YF2NV YF-NV  0.077
YF-NV OB2NV  0.207

21AUG77  5 19 39.2
YF4NV YF-NV  0.062
YF4NV YF2NV -0.003
YF4NV YF3NV -0.114
YF3NV YF-NV  0.176
YF3NV YF2NV -0.069
YF2NV YF-NV  0.167
YF-NV OB2NV -0.107
OB3NV OB2NV -0.104
OB2NV RK-ON  0.112

21AUG77 11 33 41.7
FA-NV OB2NV  0.205
YF4NV YF-NV  0.059
YF4NV YF2NV  0.019
YF4NV YF3NV  0.031
YF3NV YF-NV  0.027
YF3NV YF2NV  0.046
YF2NV YF-NV  0.011
YF-NV OB2NV  0.081
OB3NV OB2NV -0.042
OB2NV RK-ON  0.108

23AUG77  3 12 55.6
GB-NM OB2NV -0.089
FA-NV OB2NV  0.031
YF4NV YF-NV -0.086
YF4NV YF2NV -0.115
YF2NV YF-NV  0.058
YF-NV OB2NV  0.168
OB2NV RK-ON  0.153

26AUG77  7 16  0.8
GB-NM OB2NV -0.108
YF4NV YF-NV -0.053
YF4NV YF2NV -0.021
YF4NV YF3NV -0.099
YF3NV YF-NV  0.054
YF3NV YF2NV  0.087
YF2NV YF-NV -0.003
YF-NV OB2NV -0.054
OB3NV OB2NV -0.040
OB2NV RK-ON  0.218
RK-ON HN-ME -0.031

28AUG77 15 40 56.7
YF4NV YF3NV -0.122
OB3NV OB2NV  0.033
OB2NV RK-ON  0.299

30AUG77  6 50 41.7
YF4NV YF-NV -0.058
YF4NV YF2NV  0.040
YF4NV YF3NV -0.144
YF3NV YF-NV -0.043
YF3NV YF2NV -0.169
YF2NV YF-NV  0.080
YF-NV OB2NV -0.152
OB3NV OB2NV -0.054
OB2NV RK-ON  0.420

 8AUG77  7  0  6.
OB2NV RK-ON  0.017
RK-ON HN-ME -0.067

 1SEP77  3  0  0.0
YF4NV YF-NV  0.076
YF4NV YF2NV  0.040
YF2NV YF-NV  0.056
RK-ON HN-ME -0.162

 3SEP77 11 56 17.7
GB-NM OB2NV -0.097
YF4NV YF-NV  0.049
YF-NV OB2NV -0.165

 4SEP77 15 40 59.7
GB-NM OB2NV  0.036
FA-NV OB2NV -0.047
YF4NV YF-NV  0.164
YF4NV YF2NV  0.133
YF4NV YF3NV -0.044
YF3NV YF-NV  0.208
YF3NV YF2NV  0.177
YF2NV YF-NV  0.053
YF-NV OB2NV -0.277
OB2NV RK-ON  0.289
RK-ON HN-ME -0.230

 4SEP77 16 39 47.5
YF4NV YF-NV  0.095
YF4NV YF2NV  0.045
YF4NV YF3NV  0.059
YF3NV YF-NV  0.003
YF3NV YF2NV -0.016
YF2NV YF-NV  0.031
YF-NV OB2NV -0.399
OB3NV OB2NV  0.011
OB2NV RK-ON  0.160

 4SEP77 17 10 37.0
GB-NM OB2NV  0.022
YF4NV YF-NV -0.018
YF4NV YF2NV -0.011
YF4NV YF3NV -0.066
YF3NV YF-NV  0.054
YF3NV YF2NV  0.027
YF2NV YF-NV -0.009
YF-NV OB2NV -0.080

OB3NV OB2NV  0.004
OB2NV RK-ON  0.294
RK-ON HN-ME -0.300

 4SEP77 17 24 50.5
YF4NV YF-NV -0.014
YF4NV YF2NV -0.108
YF4NV YF3NV -0.092
YF3NV YF-NV  0.101
YF3NV YF2NV -0.029
YF2NV YF-NV  0.083
YF-NV OB2NV  0.284
OB2NV RK-ON  0.298
RK-ON HN-ME -0.225

 4SEP77 18  0 11.2
YF4NV YF-NV -0.064
YF4NV YF2NV -0.060
YF4NV YF3NV -0.179
YF3NV YF-NV  0.158
YF3NV YF2NV  0.118
YF2NV YF-NV  0.010
YF-NV OB2NV -0.156
OB3NV OB2NV -0.012
OB2NV RK-ON  0.268

 4SEP77 18 25 55.1
YF4NV YF-NV  0.197
YF4NV YF2NV -0.061
YF4NV YF3NV -0.018
YF3NV YF-NV  0.140
YF3NV YF2NV  0.045
YF2NV YF-NV  0.202
YF-NV OB2NV -0.180
OB3NV OB2NV -0.014
OB2NV RK-ON  0.432
RK-ON HN-ME -0.249

 4SEP77 19 23  1.0
YF4NV YF-NV  0.111
YF4NV YF2NV -0.067
YF4NV YF3NV -0.091
YF3NV YF-NV  0.199
YF3NV YF2NV  0.027
YF2NV YF-NV  0.189
YF-NV OB2NV -0.044
OB3NV OB2NV -0.000
OB2NV RK-ON  0.344

 4SEP77 23 20 48.0
YF4NV YF-NV  0.199
YF4NV YF2NV -0.021
YF4NV YF3NV -0.096
YF3NV YF-NV  0.037
YF3NV YF2NV -0.017
YF2NV YF-NV  0.054
YF-NV OB2NV -0.007
OB3NV OB2NV -0.010
OB2NV RK-ON  0.178
RK-ON HN-ME -0.189

 5SEP77 12 52 14.9
YF4NV YF-NV  0.209
YF4NV YF2NV  0.061
```

```
YF4NV YF3NV -0.205
YF3NV YF-NV  0.352
YF3NV YF2NV  0.249
YF2NV YF-NV  0.148
YF-NV OB2NV -0.186
OB3NV OB2NV -0.023
OB2NV RK-ON  0.250

20AUG77 22  0  0.6
OB2NV RK-ON  0.237
RK-ON HN-ME -0.253

13JUN77  5 28 32.0
GB-NM OB2NV  0.090
FA-NV OB2NV  0.107
OB3NV OB2NV -0.035
OB2NV RK-ON  0.150

13JUN77  8  2 13.4
GB-NM OB2NV  0.080
FA-NV OB2NV -0.117
OB3NV OB2NV -0.012
OB2NV RK-ON  0.073

13JUN77 10  8 44.
GB-NM OB2NV  0.212
FA-NV OB2NV  0.010
YF2NV YF-NV  0.070
YF-NV OB2NV  0.289
OB3NV OB2NV -0.066

 7JUN77 13 31 25.4
GB-NM OB2NV  0.112

15JUN77 13 18  6.9
GB-NM OB2NV -0.110
FA-NV OB2NV -0.157
OB3NV OB2NV -0.072

17JUN77  8 26 30.3
GB-NM OB2NV  0.173

17JUN77 22 54 28.4
GB-NM OB2NV  0.003

18JUN77 10 23 56.0
GB-NM OB2NV -0.066

18JUN77 20 56 42.9
GB-NM OB2NV -0.479
FA-NV OB2NV -0.322
OB3NV OB2NV -0.066

19JUN77 11 47 22.3
GB-NM OB2NV -0.107
YF2NV YF-NV  0.059
YF-NV OB2NV -0.219
OB3NV OB2NV -0.003
FA-NV OB2NV -0.020

19JUN77 17  5 21.6
GB-NM OB2NV  0.235
OB3NV OB2NV  0.068

26JUN77  5 59 26.2
FA-NV OB2NV  0.058

28JUN77 16 18 12.9
GB-NM OB2NV -0.210
FA-NV OB2NV  0.000

28JUN77 19 18 34.7
GB-NM OB2NV -0.019
FA-NV OB2NV  0.069

29JUN77  8 47 15.4
GB-NM OB2NV  0.202
FA-NV OB2NV  0.065

30JUN77  2 45 55.4
GB-NM OB2NV -0.064
FA-NV OB2NV -0.147
YF2NV YF-NV  0.081
YF-NV OB2NV  0.076

30JUN77  8 51 24.7
GB-NM OB2NV  0.629
FA-NV OB2NV  0.048
OB3NV OB2NV  0.099

 2JUL77 15 50 46.9
GB-NM OB2NV -0.005
FA-NV OB2NV  0.140
OB3NV OB2NV  0.011

 6JUN77  6 38 43.1
FA-NV OB2NV  0.074
OB3NV OB2NV  0.041

18JUN77 10  4  2.2
FA-NV OB2NV -0.050
YF2NV YF-NV -0.089
YF-NV OB2NV -0.171
OB3NV OB2NV -0.047

 3JUL77 12 55 39.9
GB-NM OB2NV  0.003
FA-NV OB2NV -0.120
OB3NV OB2NV -0.035

24JUL77 19 55 38.9
FA-NV OB2NV -0.043

26JUL77 16 59 59.0
GB-NM OB2NV  0.104
OB3NV OB2NV -0.211

 1AUG77 16 30 37.7
GB-NM OB2NV -0.528
FA-NV OB2NV -0.322
OB3NV OB2NV  0.058

 6JUL77 10  2 52.9
GB-NM OB2NV  0.181
OB2NV RK-ON  0.002

 7JUL77  9 57 32.3
GB-NM OB2NV  0.112

11JUL77 12 35 49.6
GB-NM OB2NV -0.102
OB2NV RK-ON  0.235

13AUG77  3 13 35.1
GB-NM  B2NV  0.082

13AUG77 19 33 11.7
GB-NM OB2NV -0.037
OB2NV RK-ON  0.390

14AUG77 10 58  9.5
GB-NM OB2NV  0.116
OB2NV RK-ON  0.198

25AUG77  7 35 30.7
GB-NM OB2NV -0.016

 1SEP77 17 37  0.9
GB-NM OB2NV  0.166
OB2NV RK-ON  0.180

 2SEP77  5 58 19.1
GB-NM OB2NV -0.097
OB2NV RK-ON  0.180

 2SEP77  7  9 53.8
GB-NM OB2NV -0.216
OB2NV RK-ON  0.234

 3SEP77 15 24 57.0
GB-NM OB2NV -0.247

 3SEP77 15 33 45.7
GB-NM OB2NV  0.145
OB2NV RK-ON  0.189

 9SEP77  2 35  6.2
GB-NM OB2NV  0.169
OB2NV RK-ON  0.115
RK-ON HN-ME -0.033

10SEP77  4 39  5.6
GB-NM OB2NV  0.128
OB2NV RK-ON  0.119

10SEP77  9 24  2.2
GB-NM OB2NV -0.021

10SEP77 10 21  9.1
GB-NM OB2NV -0.276
YF4NV YF-NV -0.140
YF-NV OB2NV  0.071
OB2NV RK-ON  0.177
RK-ON HN-ME -0.089

12SEP77 23 16 52.7
GB-NM OB2NV -0.129
OB2NV RK-ON  0.398

13SEP77  0 21 49.3
GB-NM OB2NV  0.177
YF4NV YF-NV -0.074
```

```
YF-NV OB2NV -0.319

13SEP77  4 55 32.3
GB-NM OB2NV  0.008
OB2NV RK-ON  0.085

13SEP77  5 36  7.7
GB-NM OB2NV  0.208

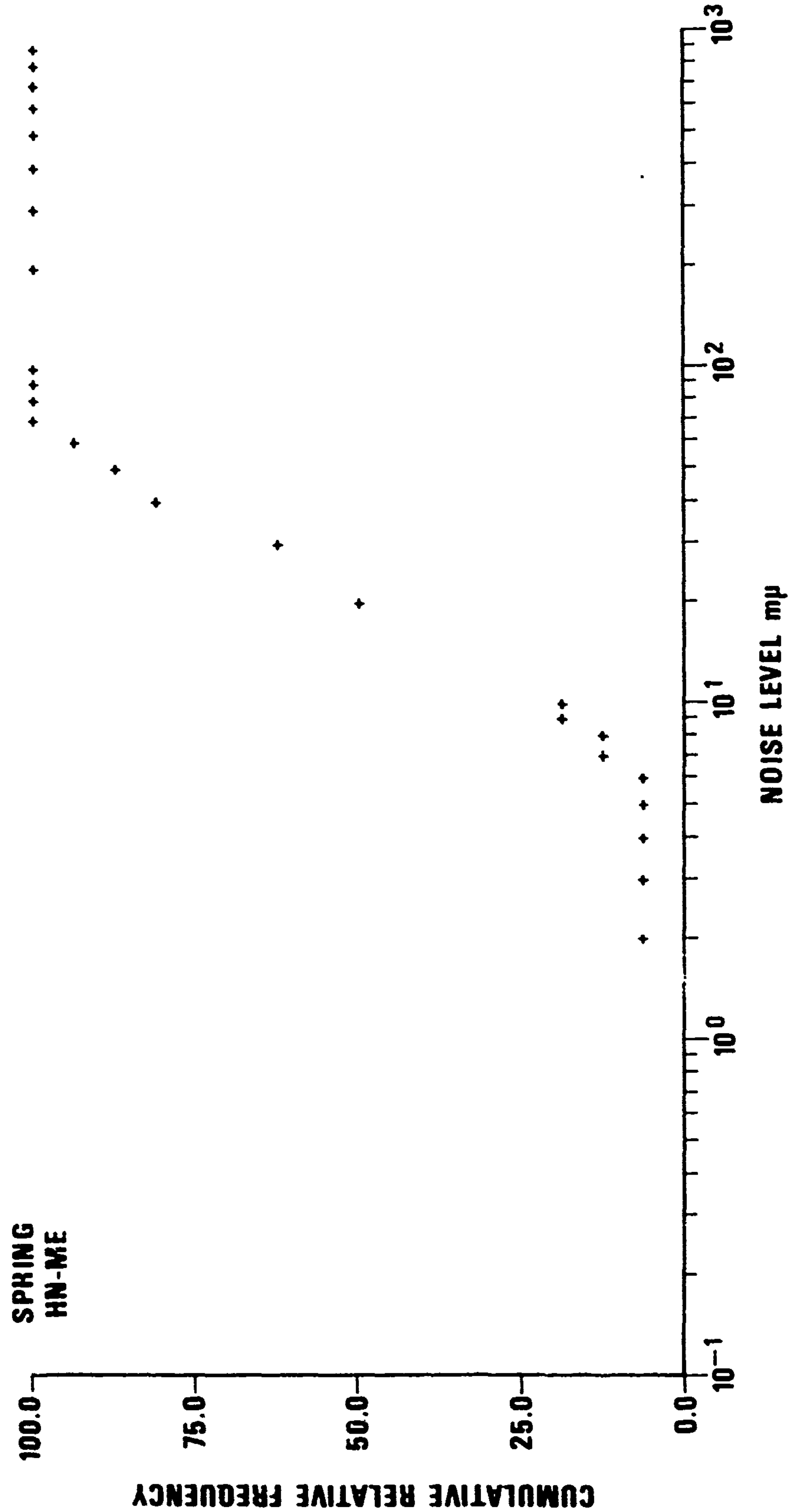
17SEP77 16 28 48.4
GB-NM OB2NV  0.129
OB2NV RK-ON  0.113

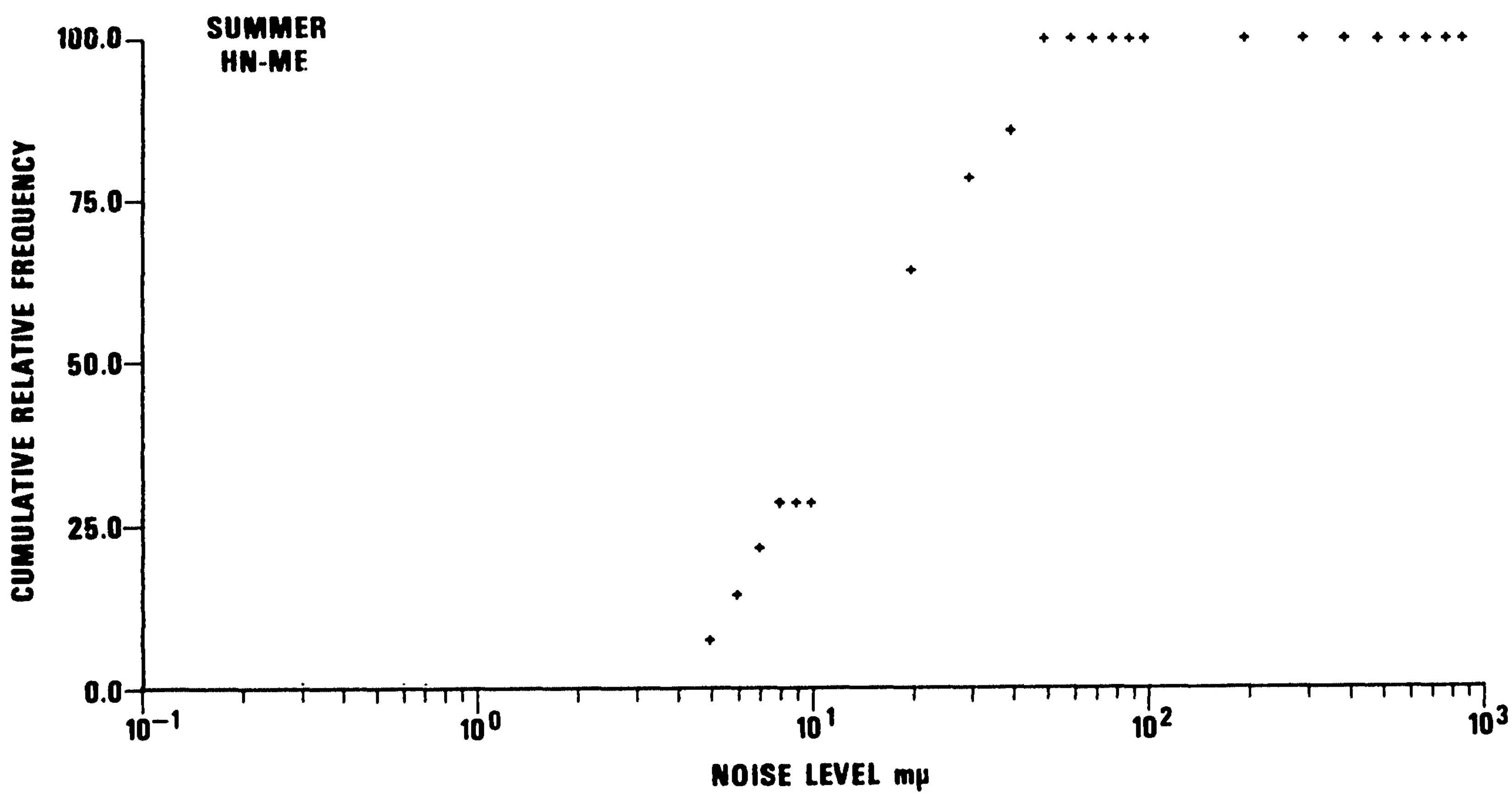
18SEP77 18 21 23.4
GB-NM OB2NV -0.092
OB2NV RK-ON  0.495

/*
```

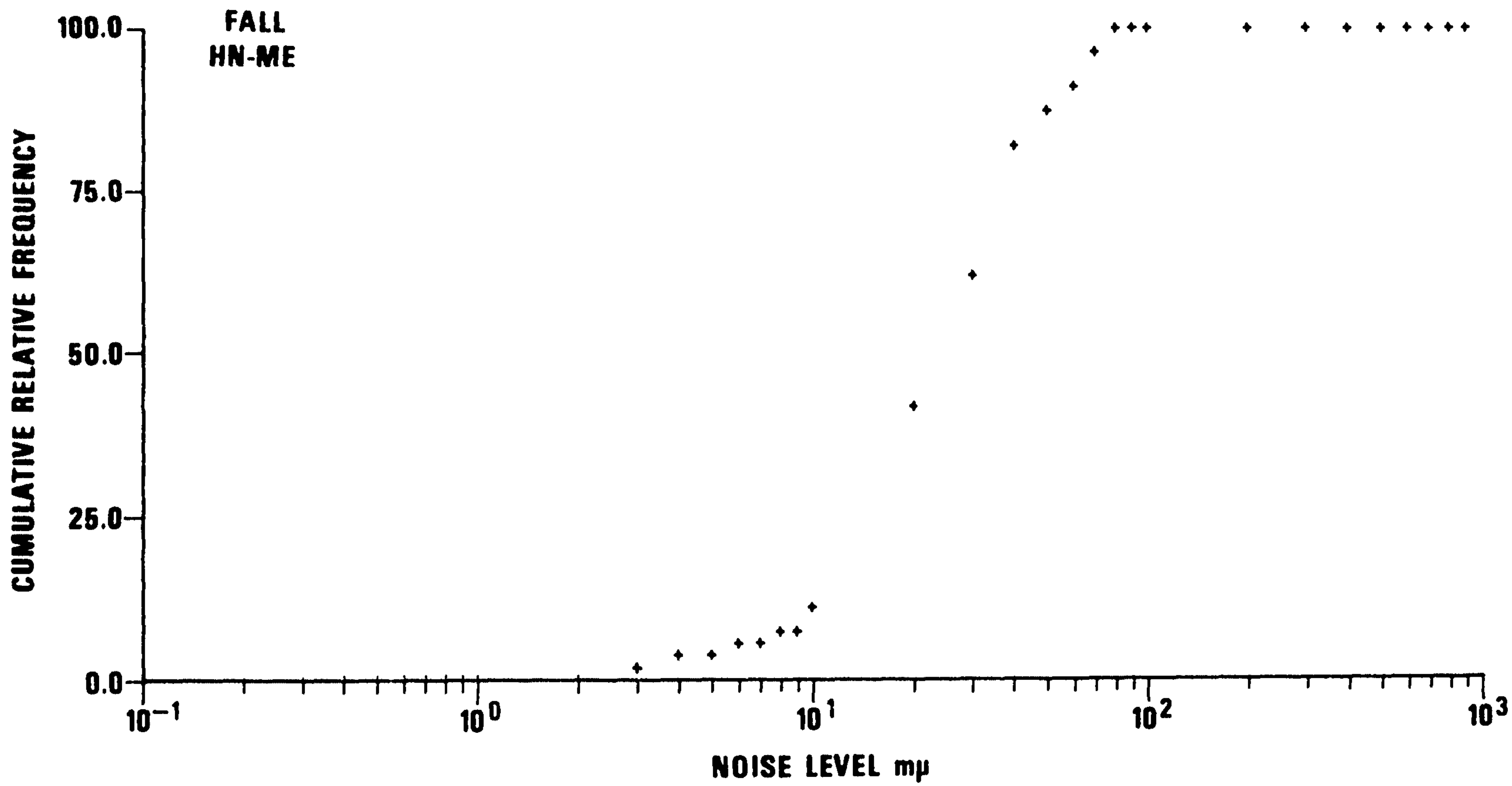
APPENDIX D

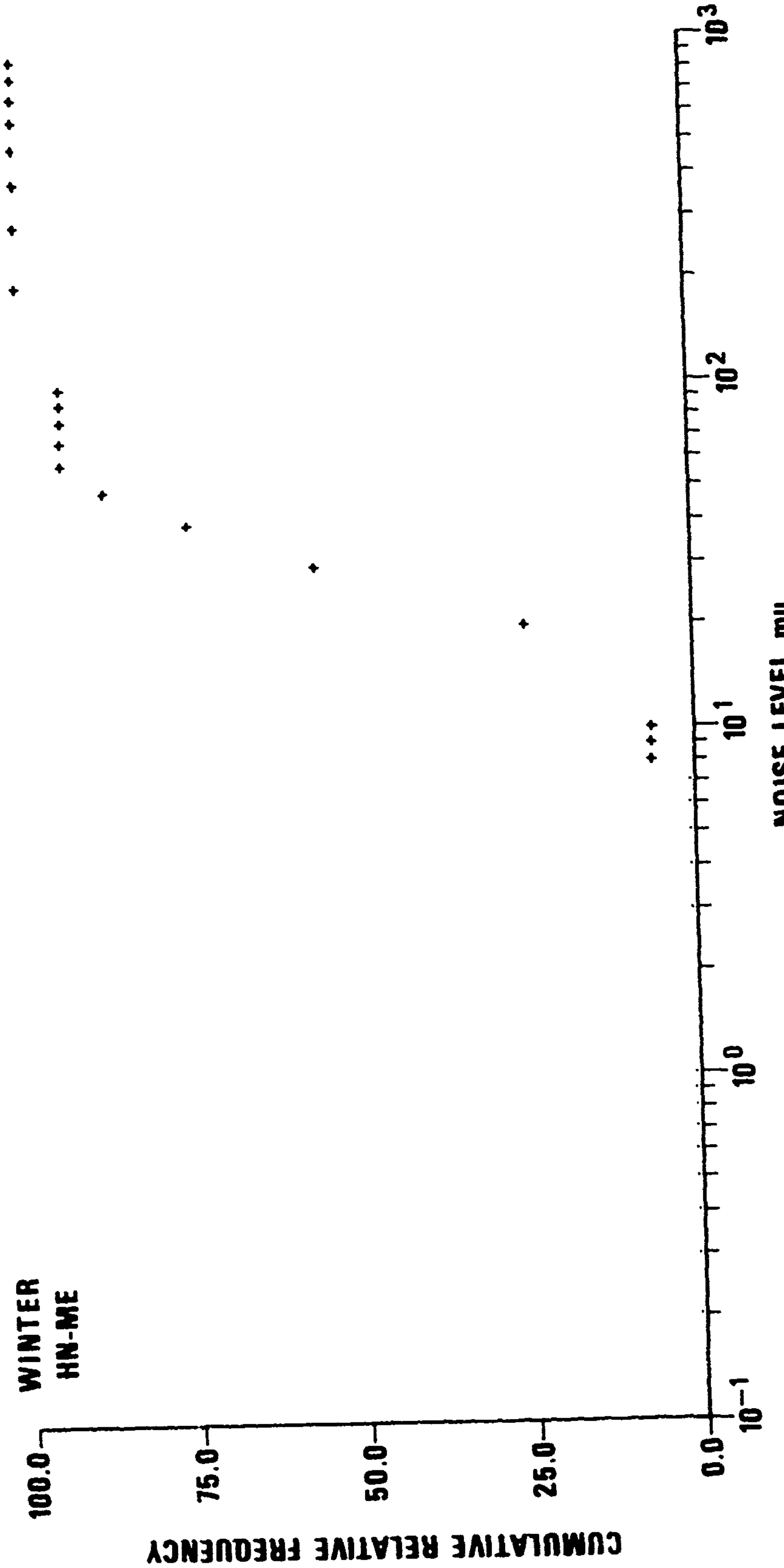
Cumulative frequency histograms of noise readings at SDSC stations during each season.

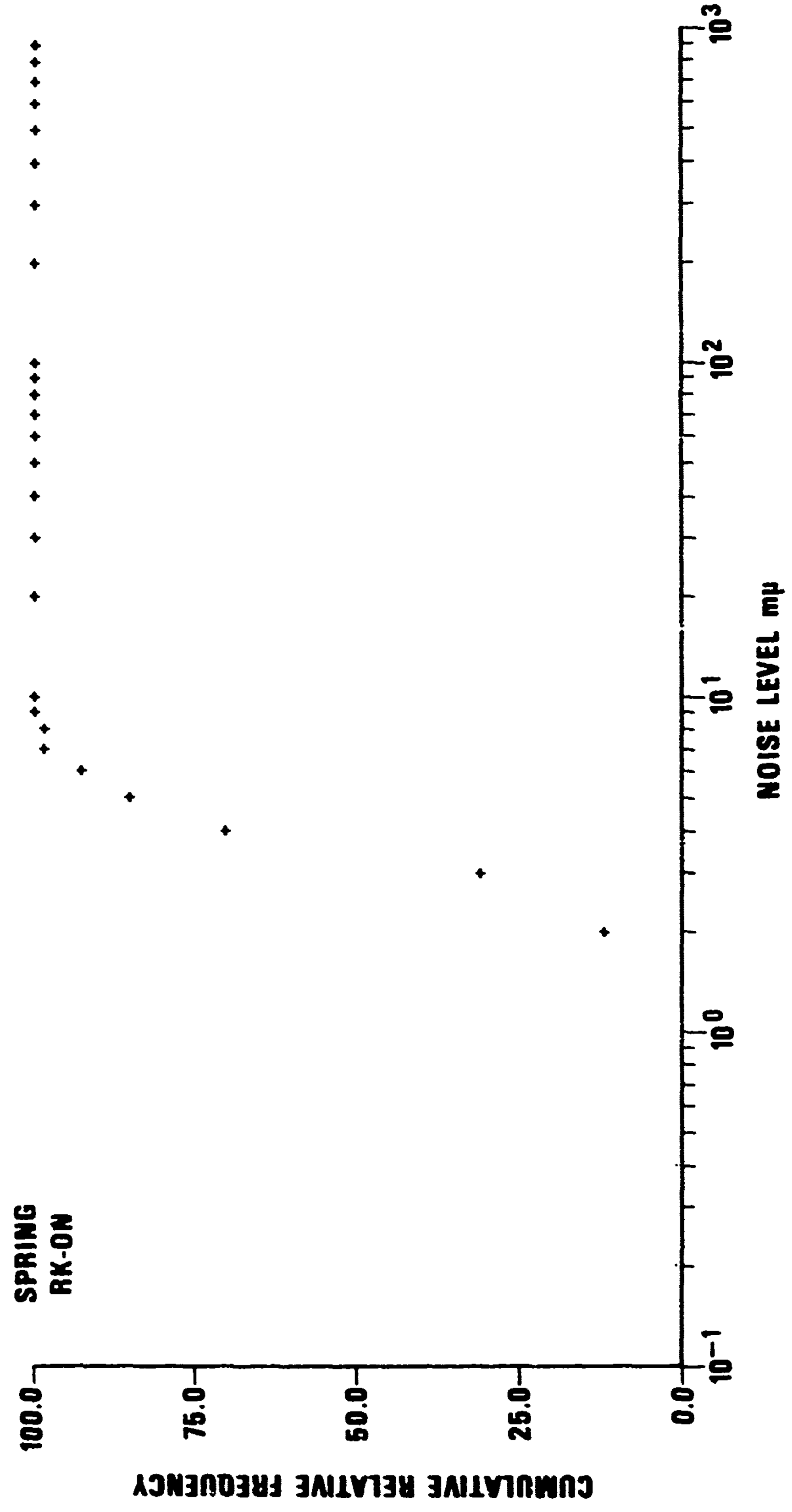

SPRING
HN-ME
CUMULATIVE RELATIVE FREQUENCY
100.0
75.0
50.0
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ

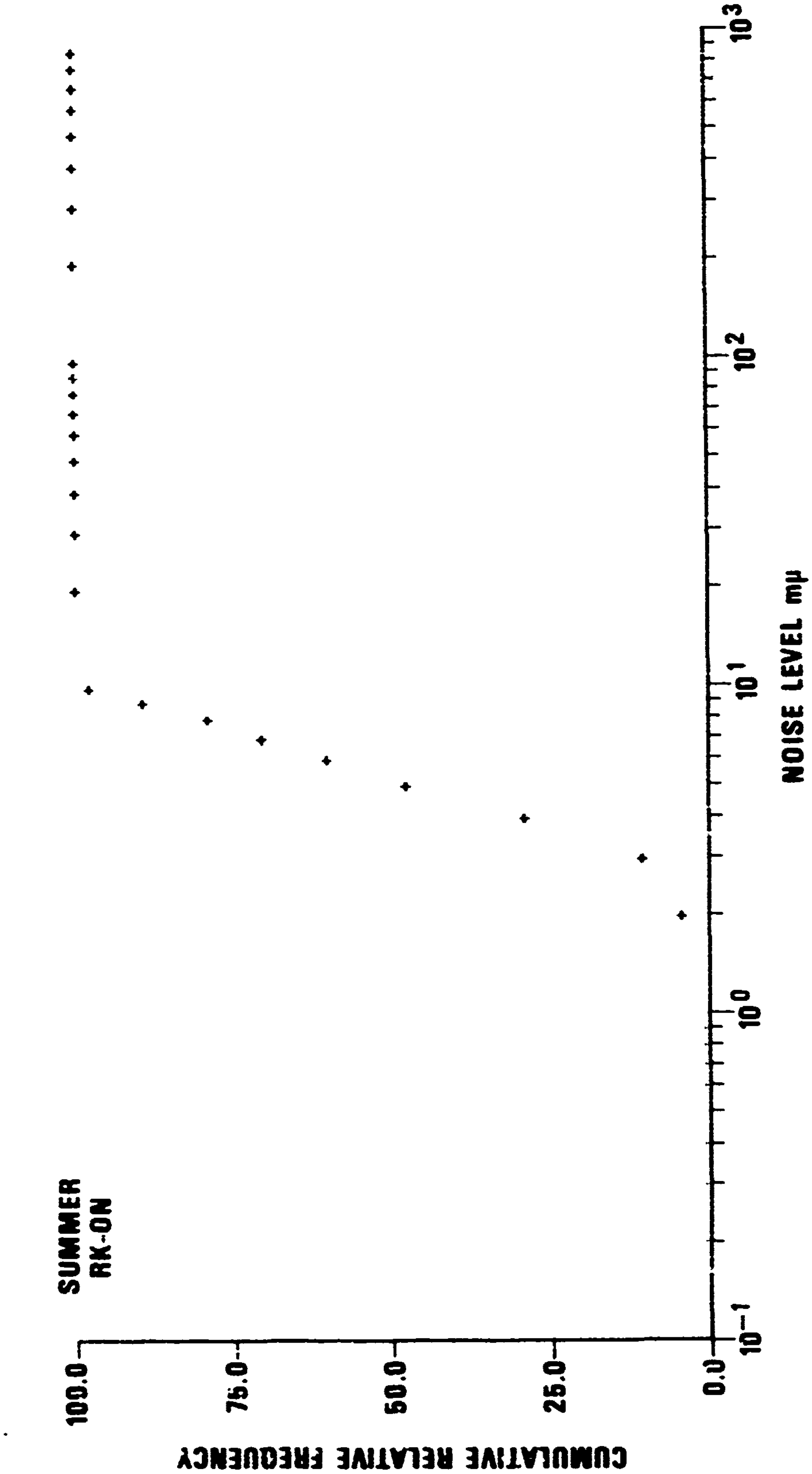


SUMMER
HN-ME
CUMULATIVE RELATIVE FREQUENCY
100.0
75.0
50.0
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


FALL
HN-ME
CUMULATIVE RELATIVE FREQUENCY
100.0
75.0
50.0
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


WINTER
HN-ME
CUMULATIVE RELATIVE FREQUENCY
100.0
75.0
50.0
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


SPRING
RK-ON
CUMULATIVE RELATIVE FREQUENCY
100.0
75.0
50.0
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ


SUMMER
RK-ON
CUMULATIVE RELATIVE FREQUENCY
100.0
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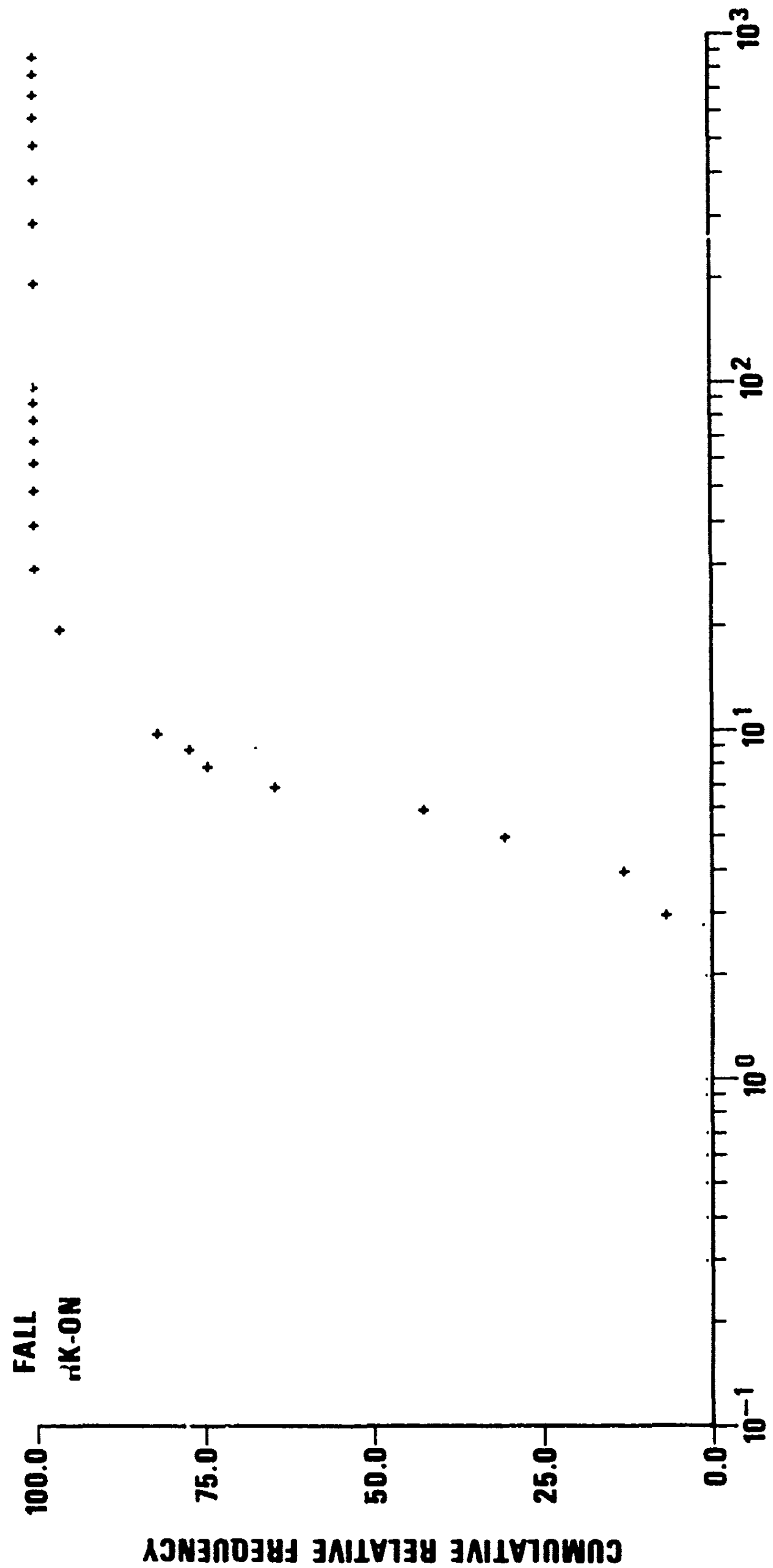
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


FALL
K-ON
CUMULATIVE RELATIVE FREQUENCY
100.0
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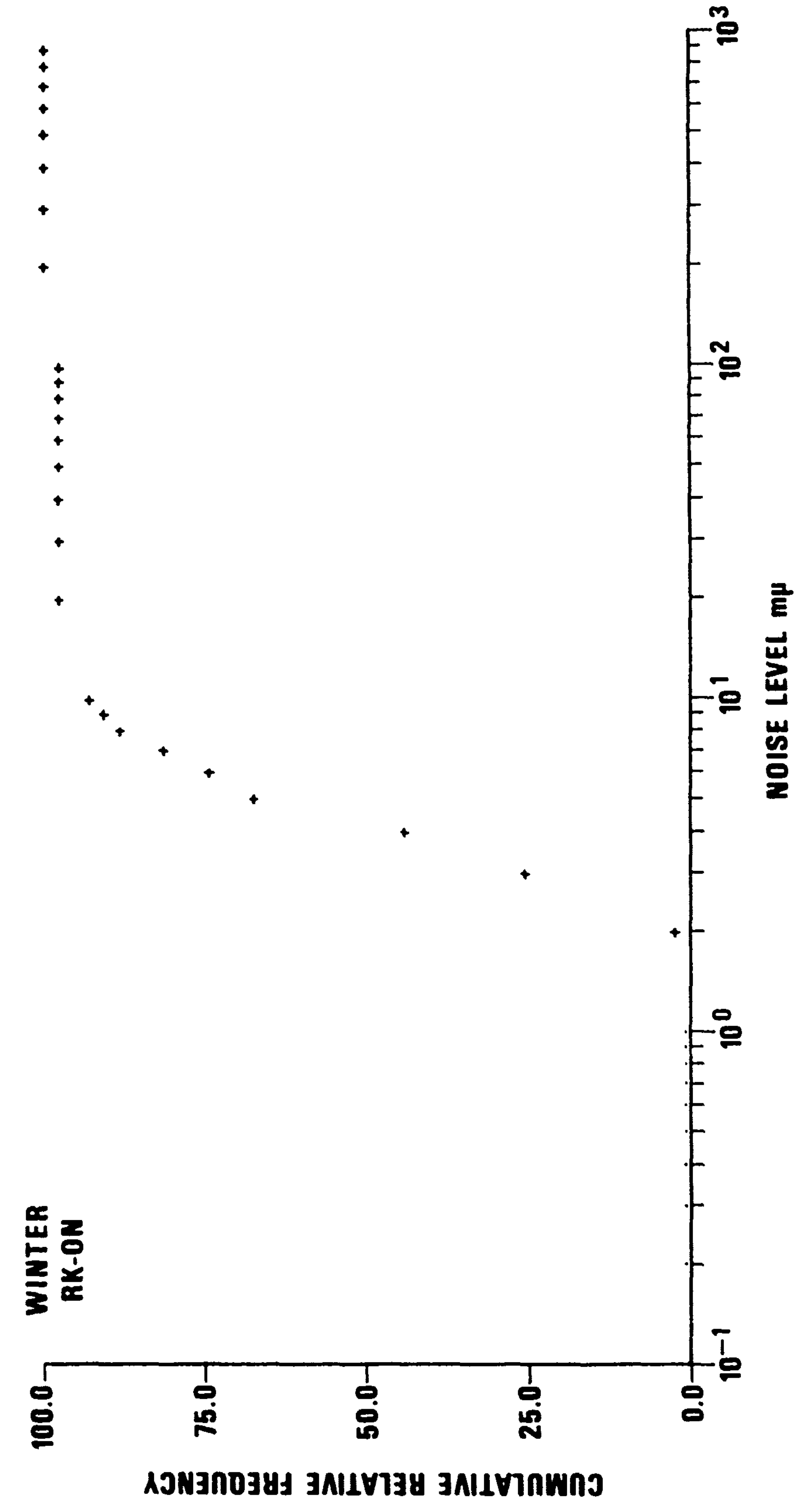
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


WINTER
RK-ON
CUMULATIVE RELATIVE FREQUENCY
100.0
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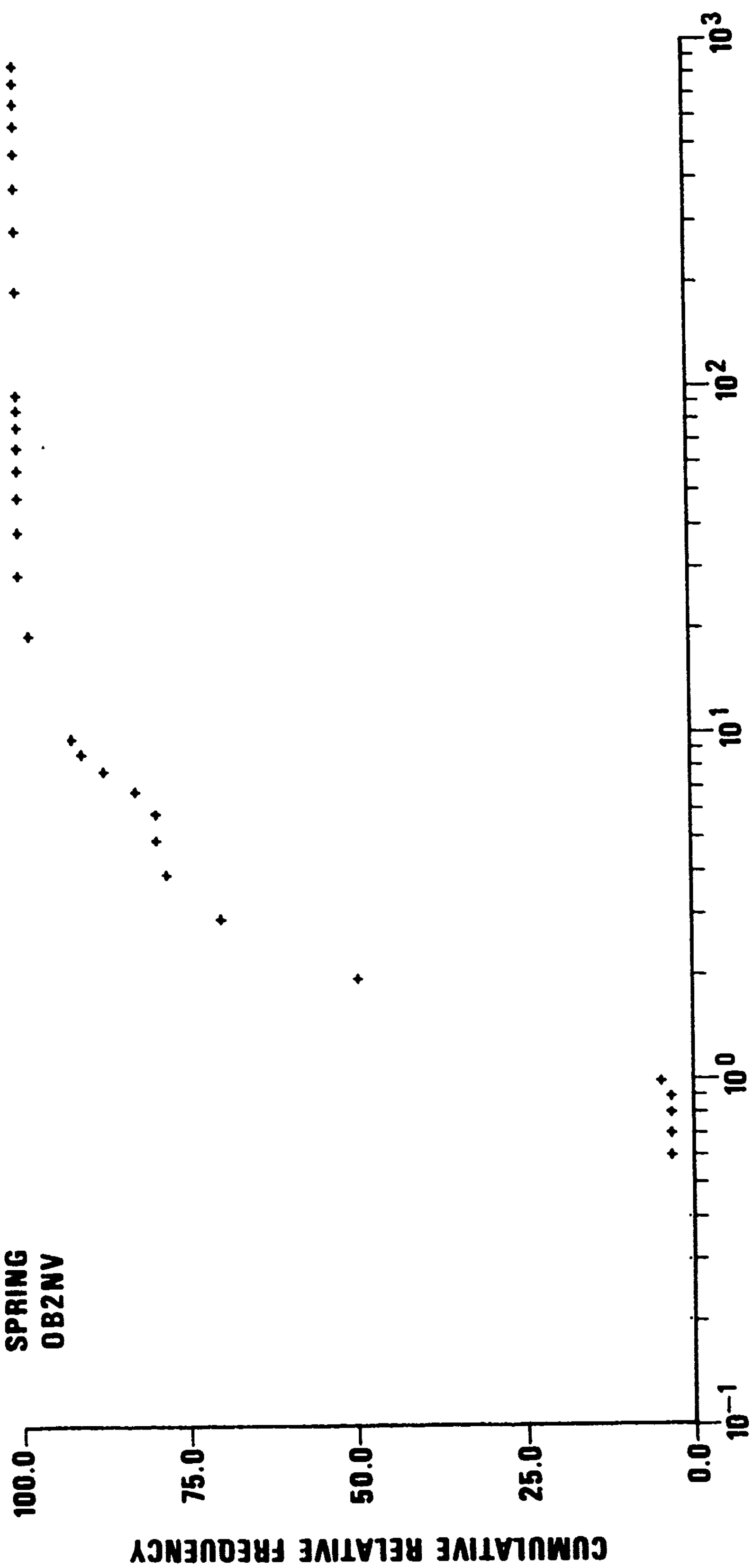
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ


SPRING
OB2NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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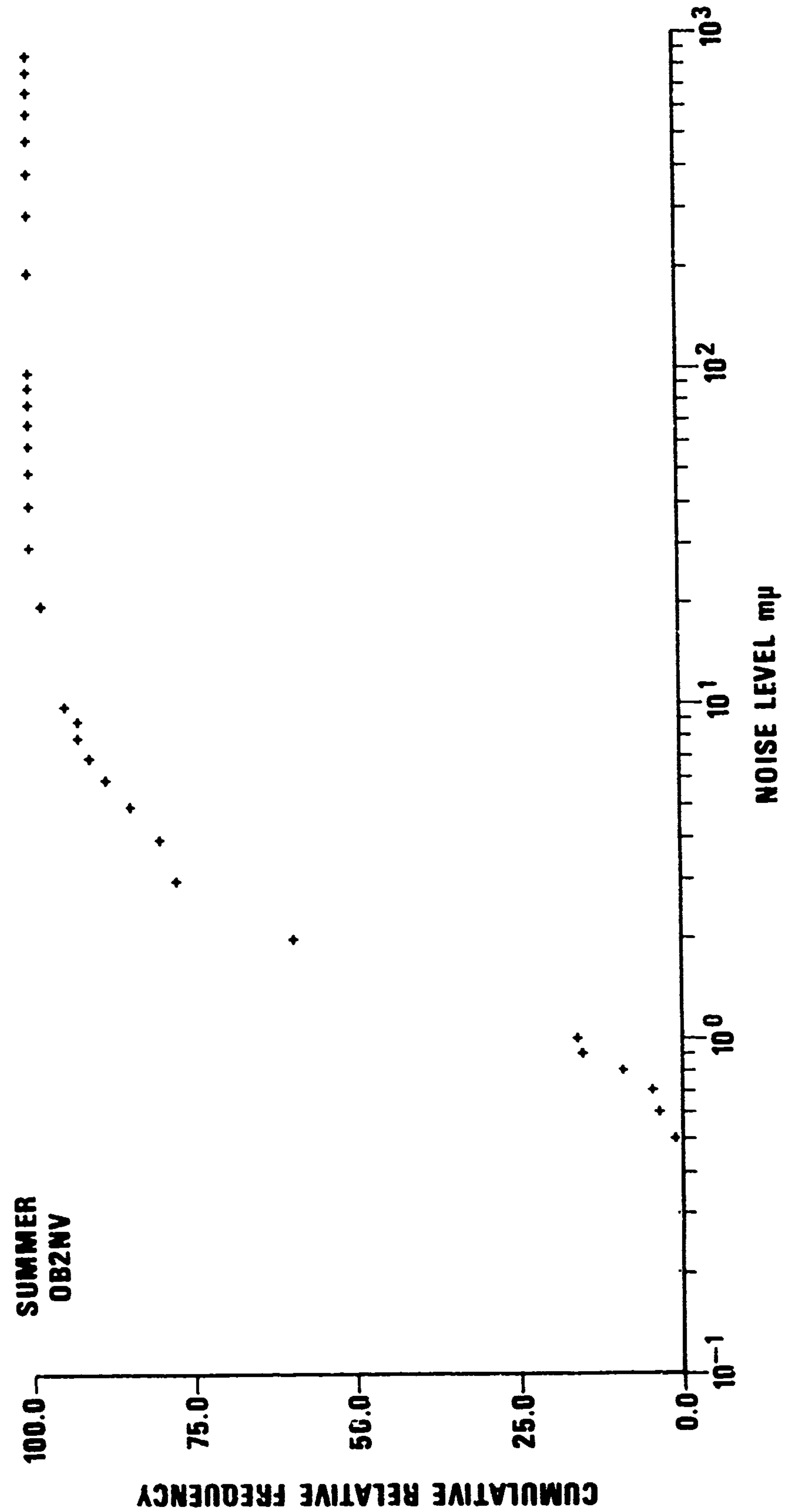
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ



SUMMER
OB2NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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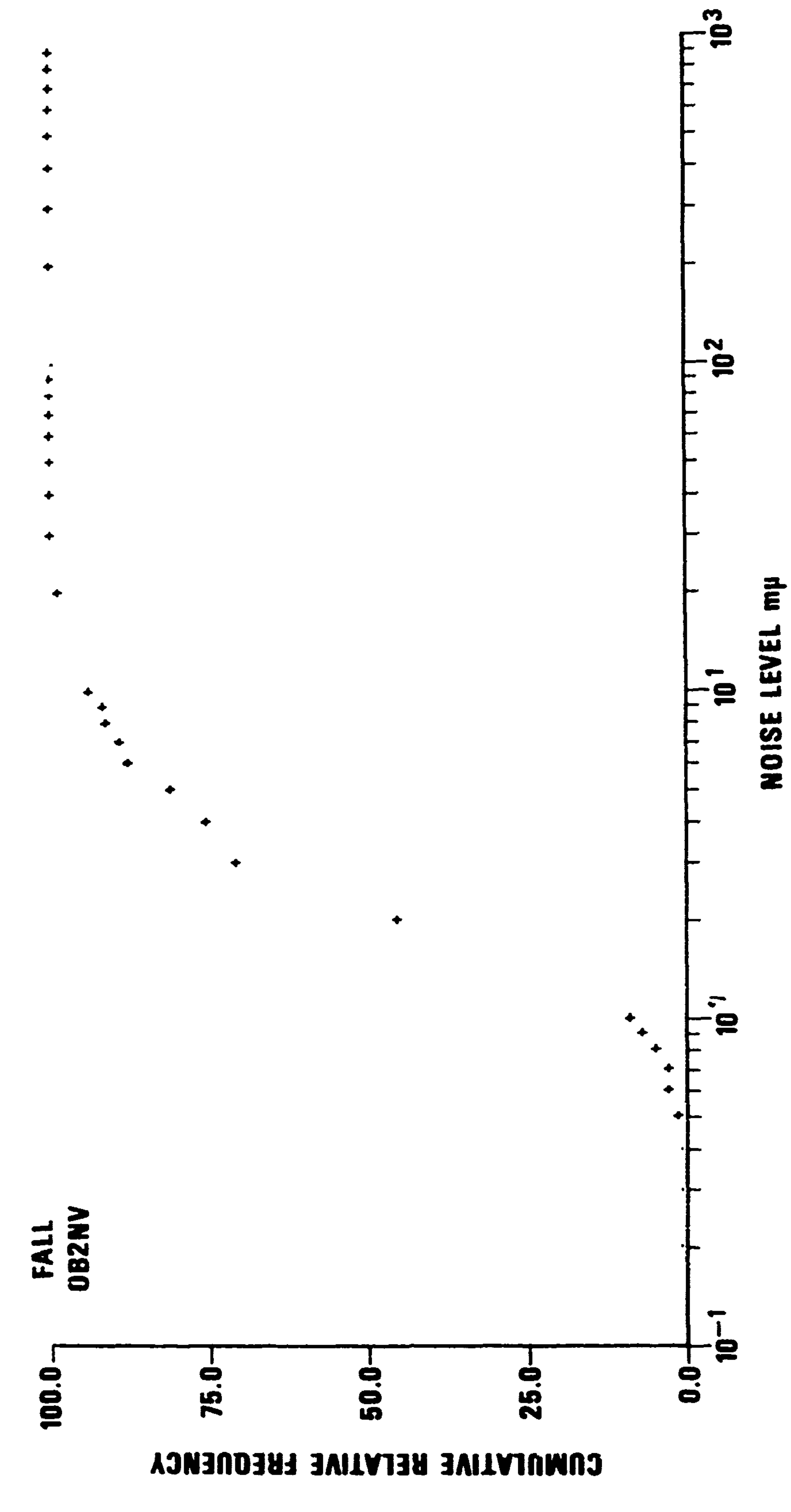
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ



FALL
OB2NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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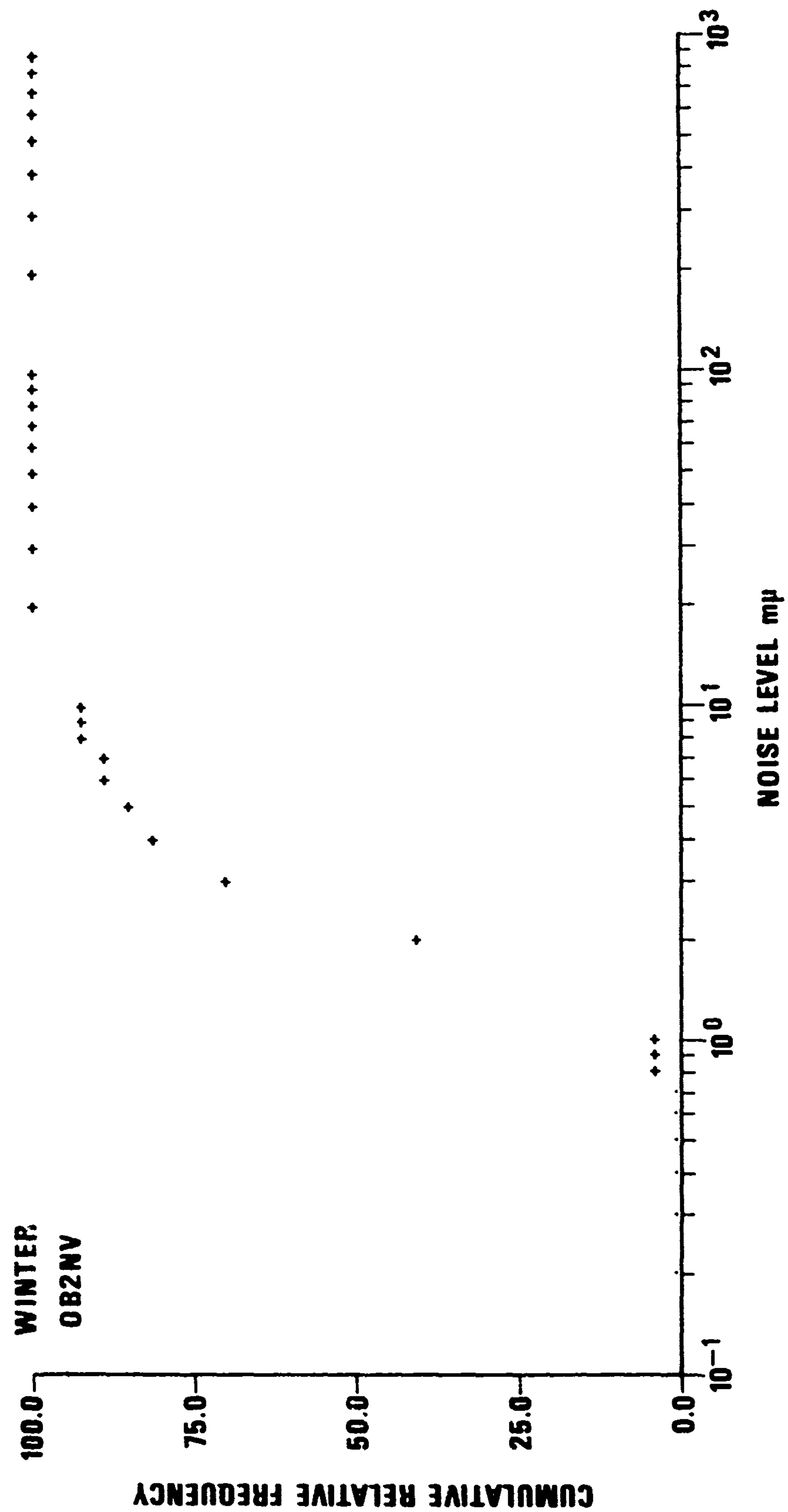
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ


WINTER
OB2NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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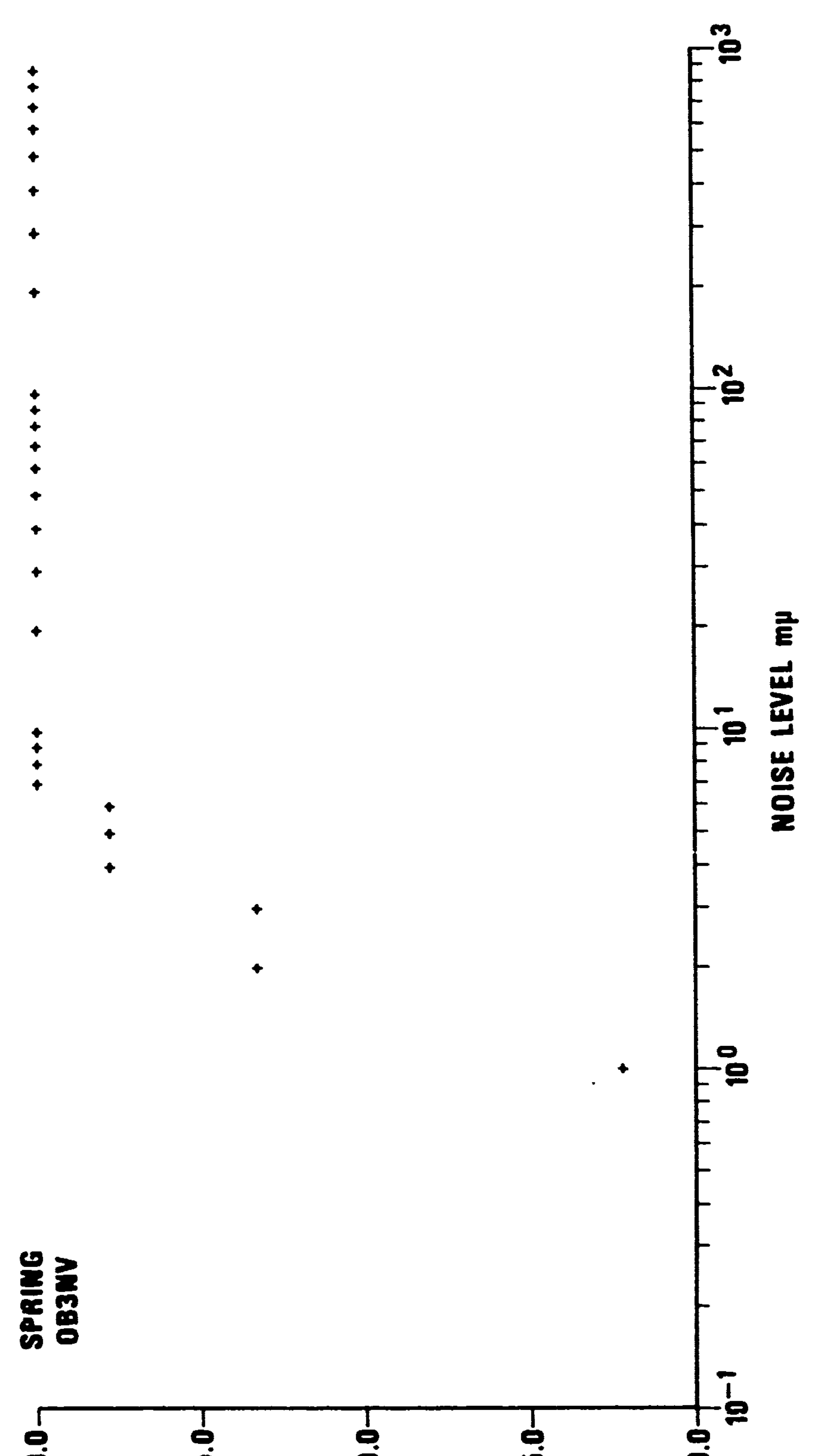
25.0
0.0
NOISE LEVEL mμ
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}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OB3NV
CUMULATIVE RELATIVE FREQUENCY
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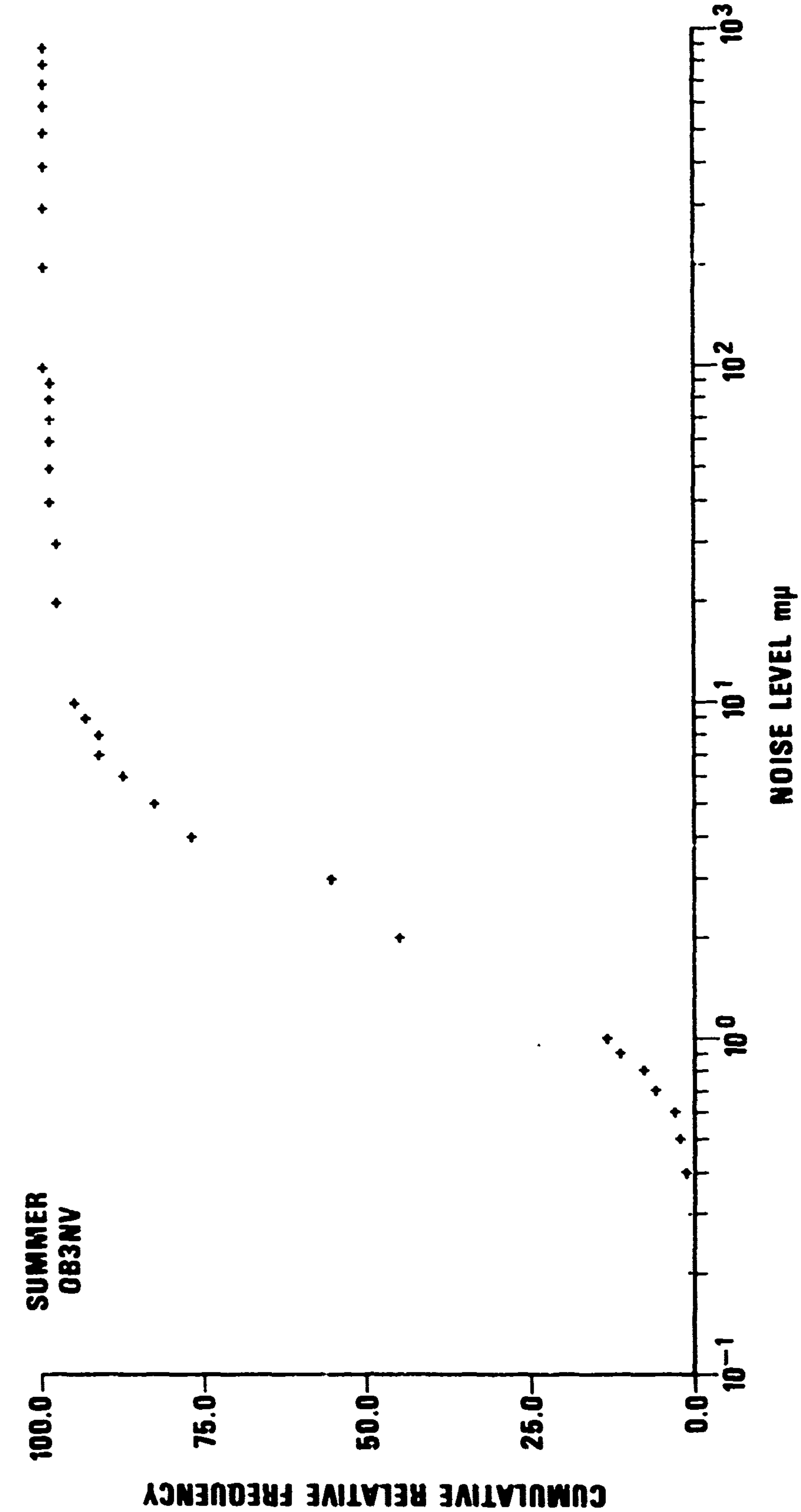
10^{2}
10^{3}
NOISE LEVEL mμ


SUMMER
OB3NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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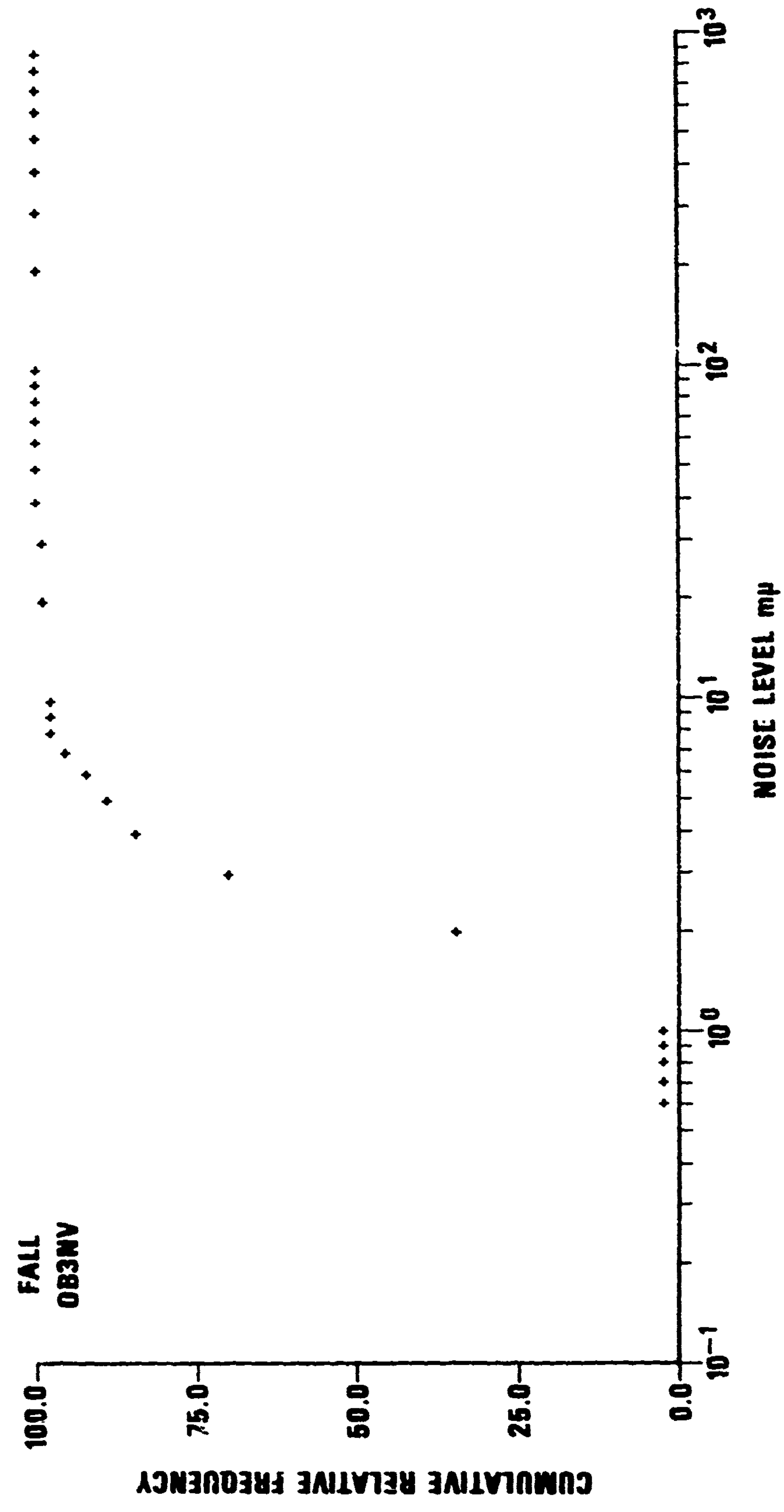
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


FALL
OB3NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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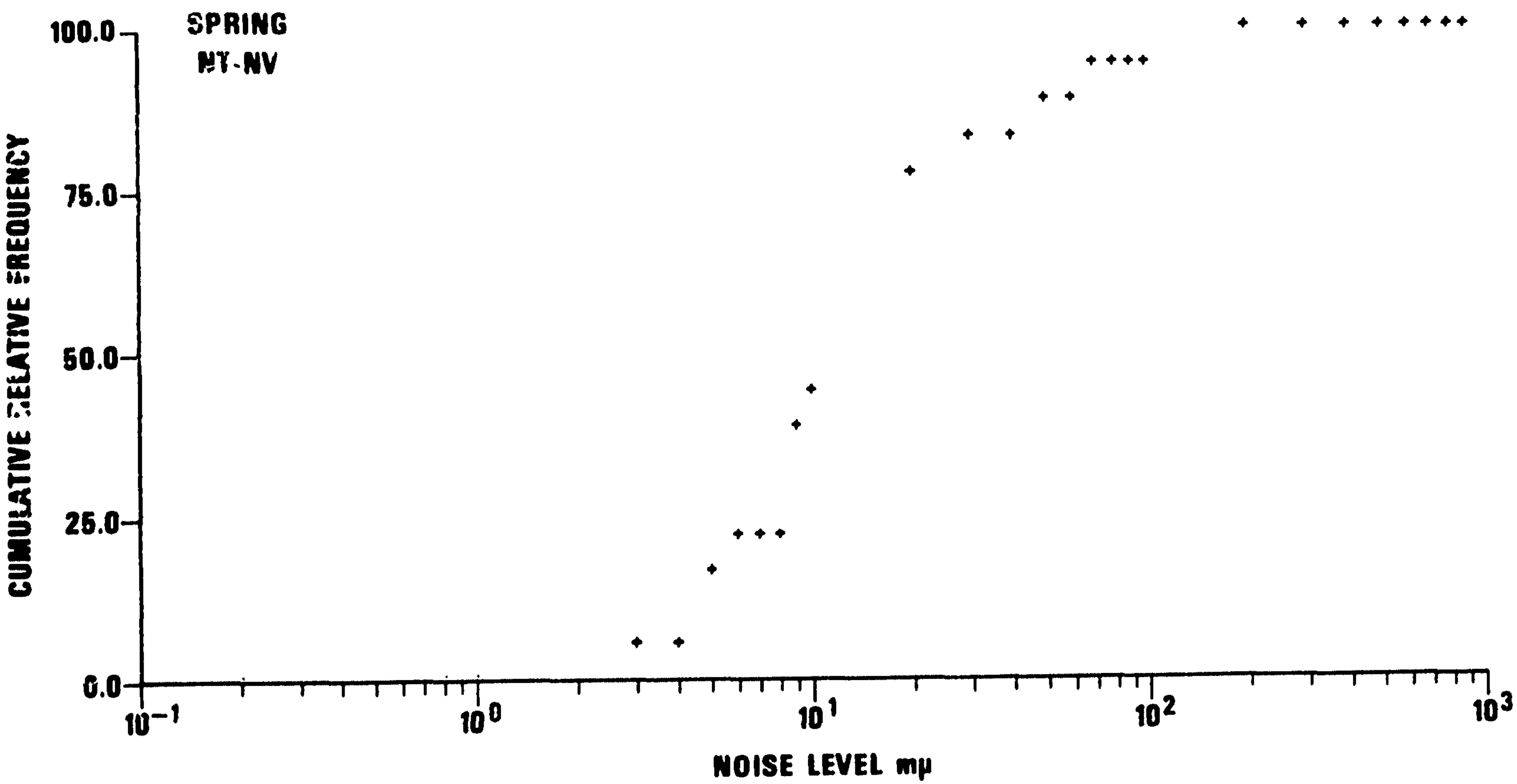
25.0
0.0
NOISE LEVEL mµ
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}



SPRING
NT-NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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0.0
10^{-1}
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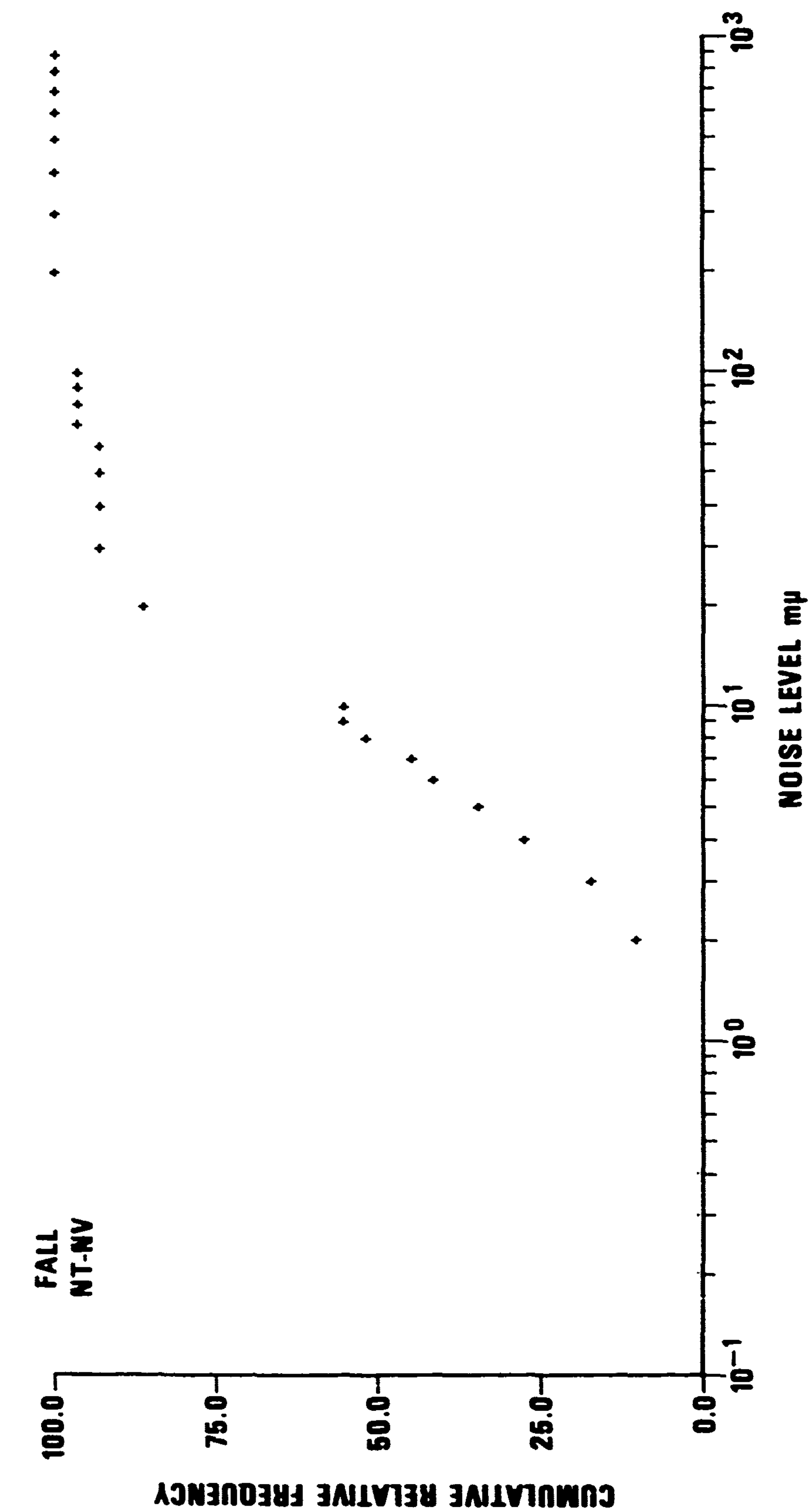
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ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NT-NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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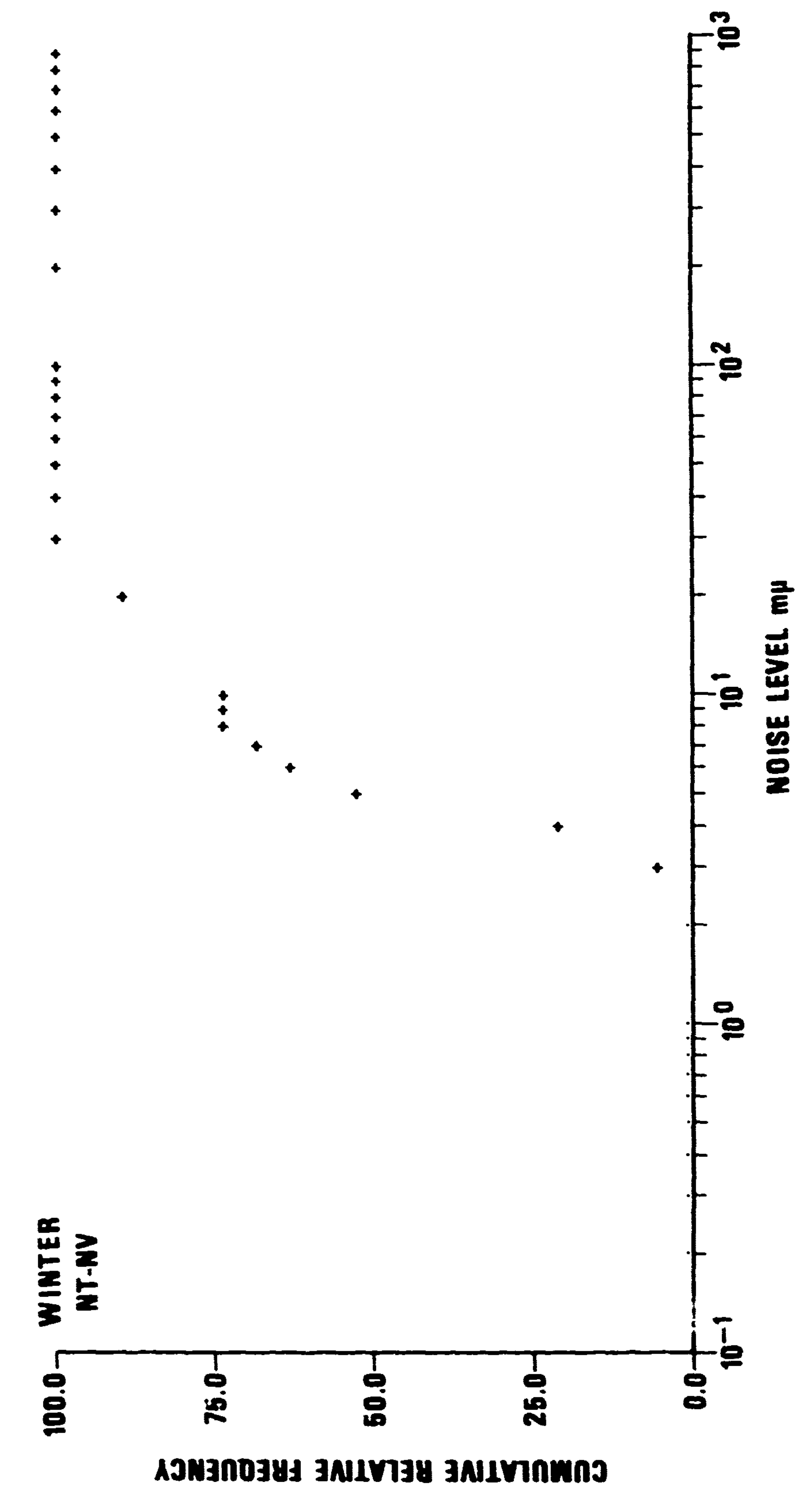
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


WINTER
NT-NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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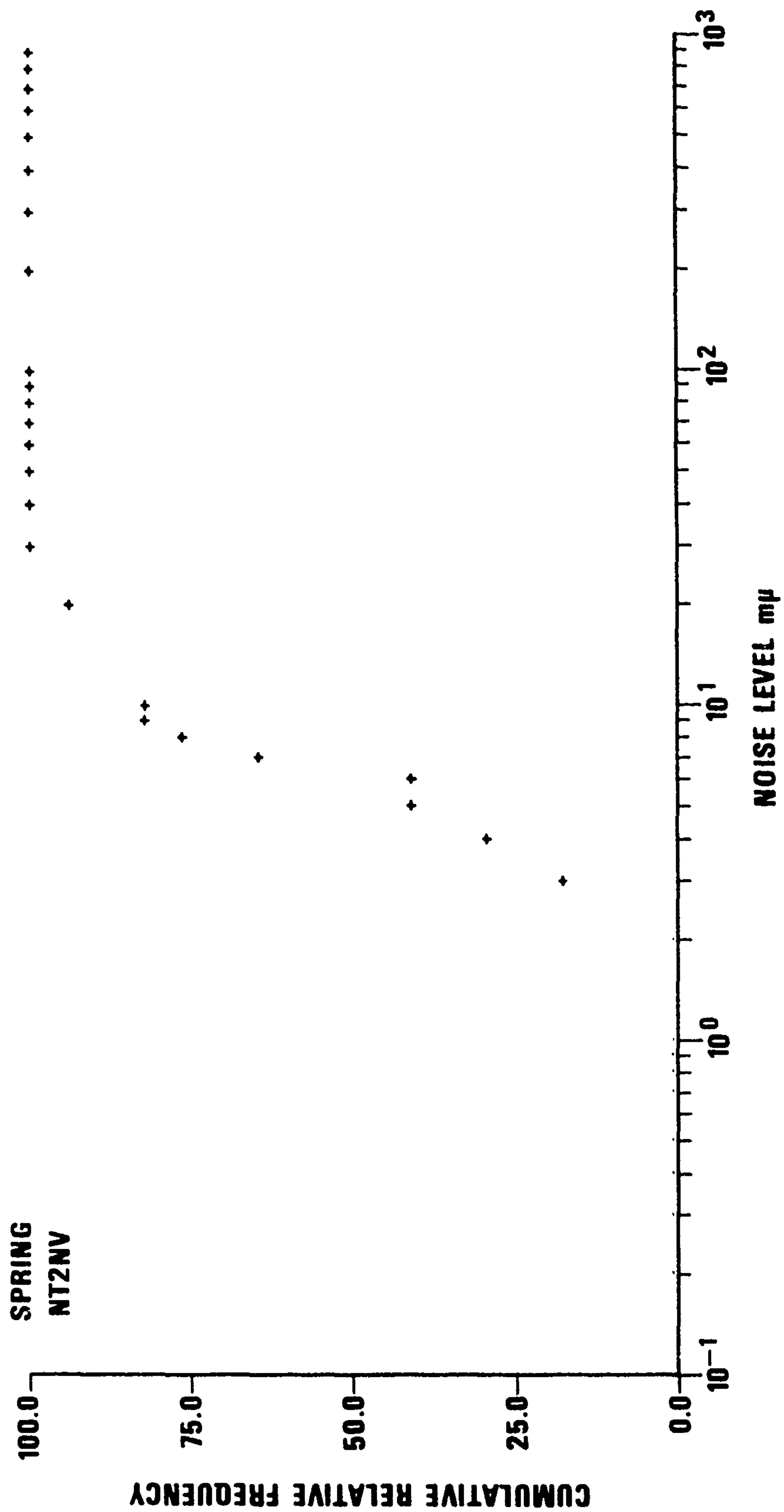
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


SPRING
NT2NV
CUMULATIVE RELATIVE FREQUENCY
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10^{-1}
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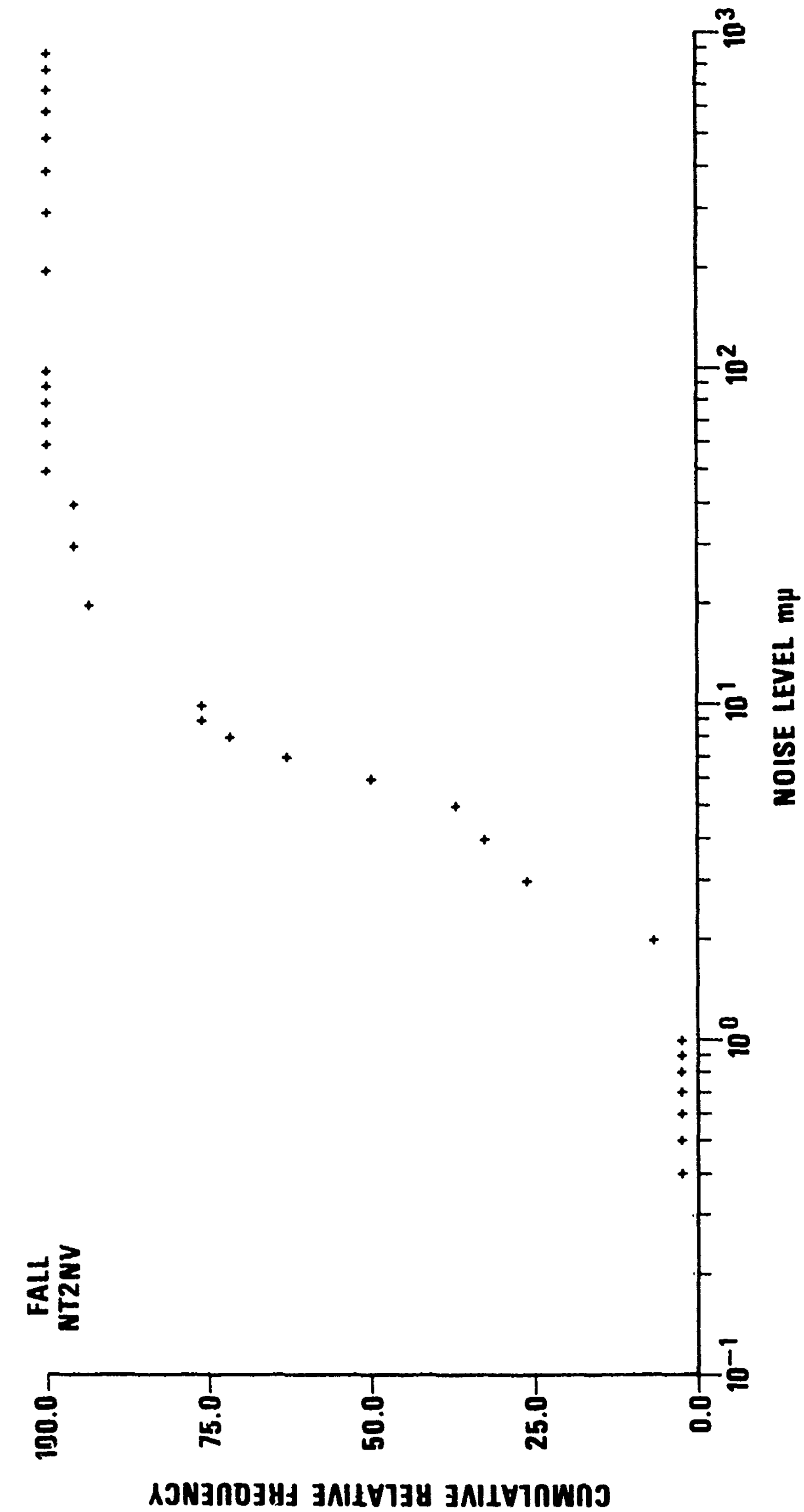
10^{2}
10^{3}
NOISE LEVEL mμ


FALL
NT2NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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25.0
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NOISE LEVEL mµ
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10^{0}
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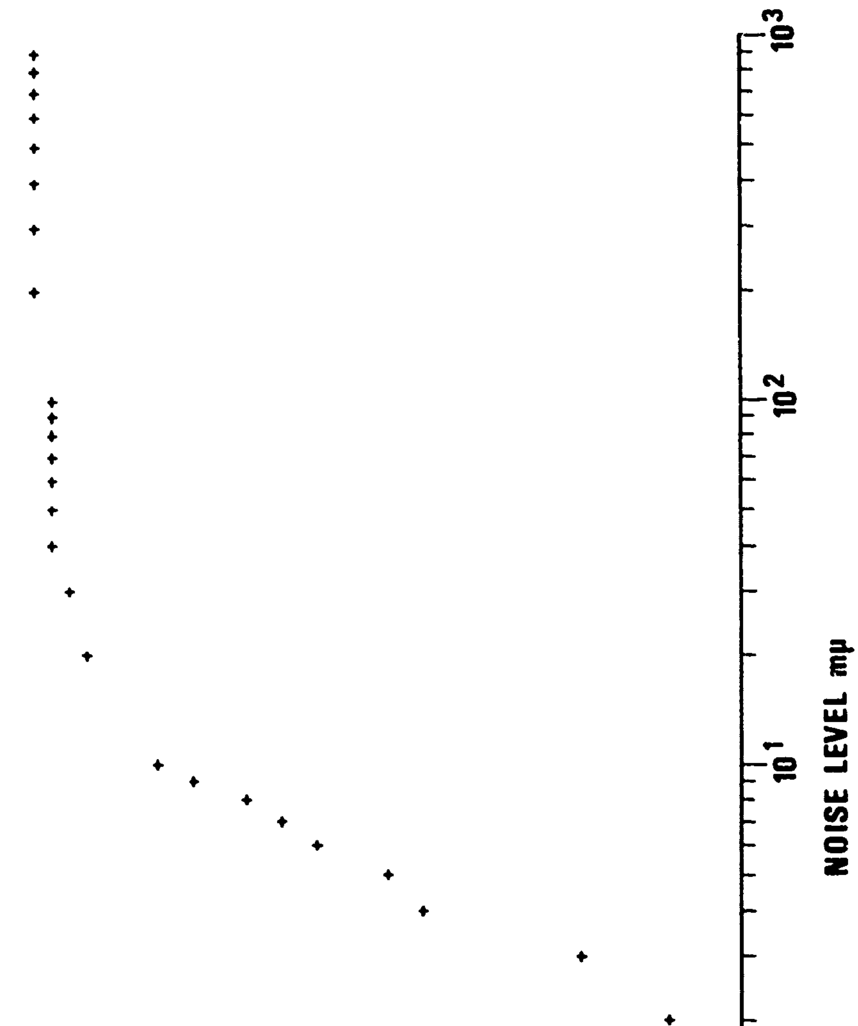
10^{2}
10^{3}


WINTER
NT2NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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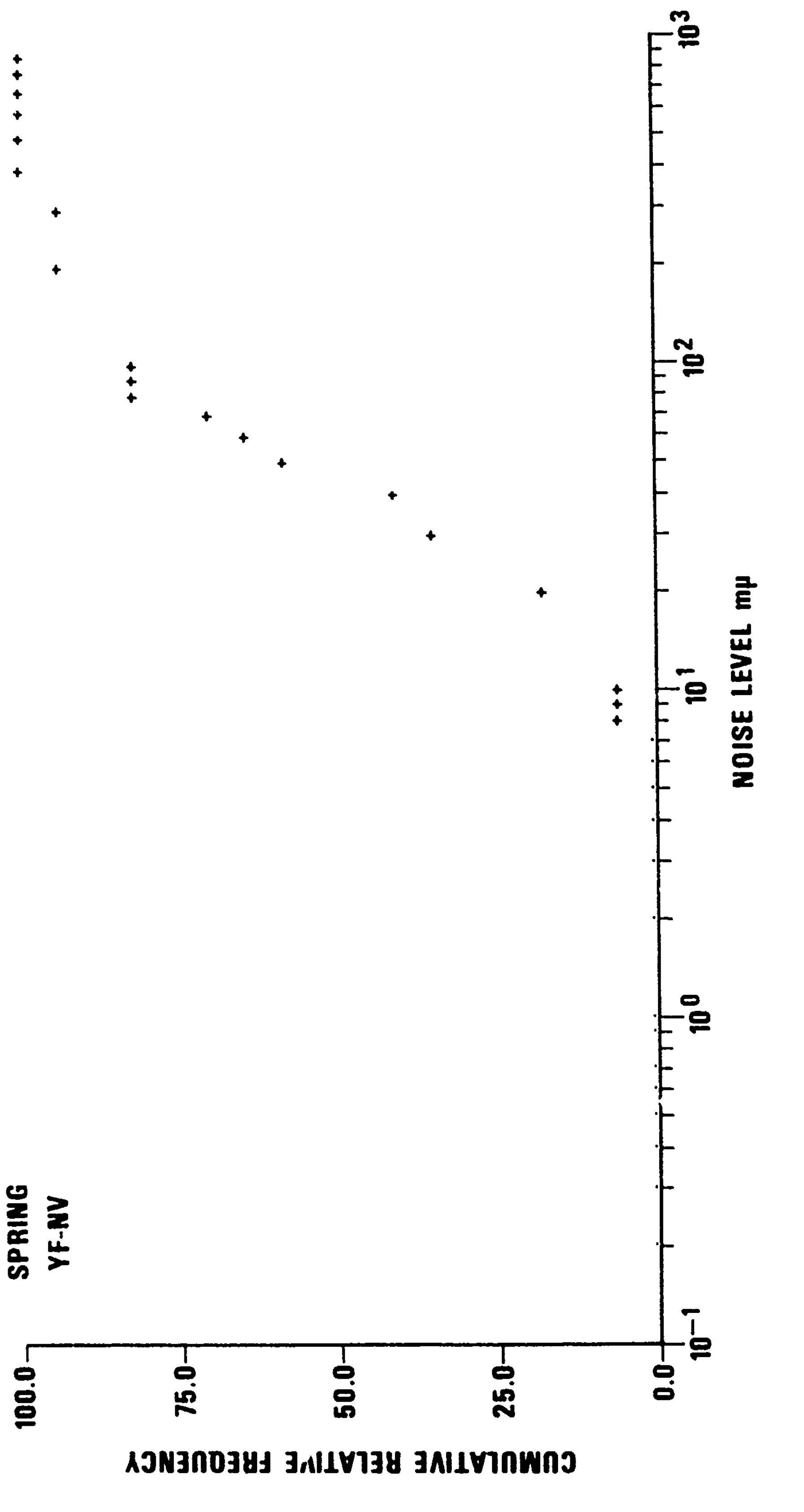
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ


SPRING
YF-NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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0.0
10^{-1}
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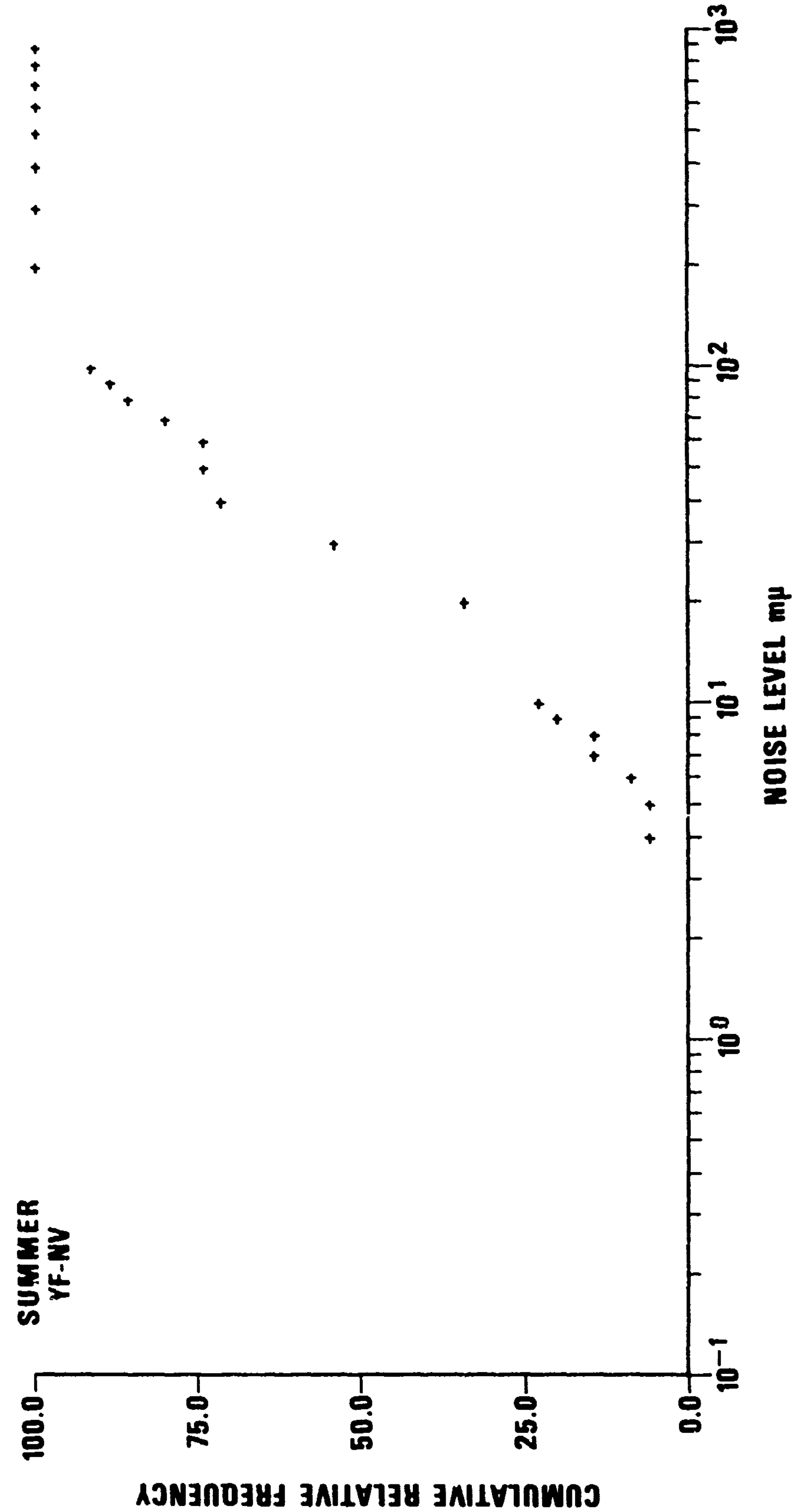
10^{2}
10^{3}
NOISE LEVEL mμ


SUMMER
YF-NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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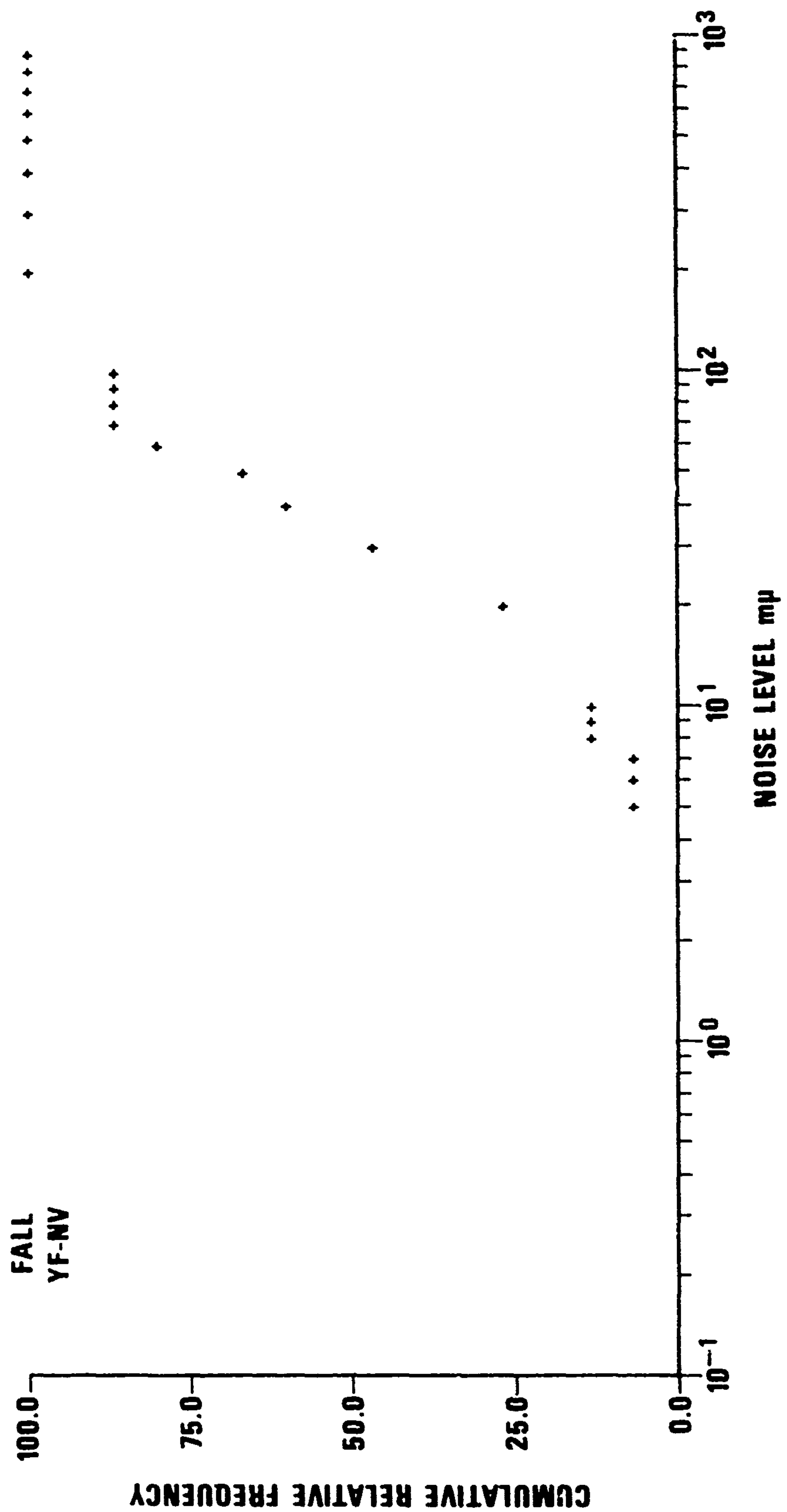
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ



FALL
YF-NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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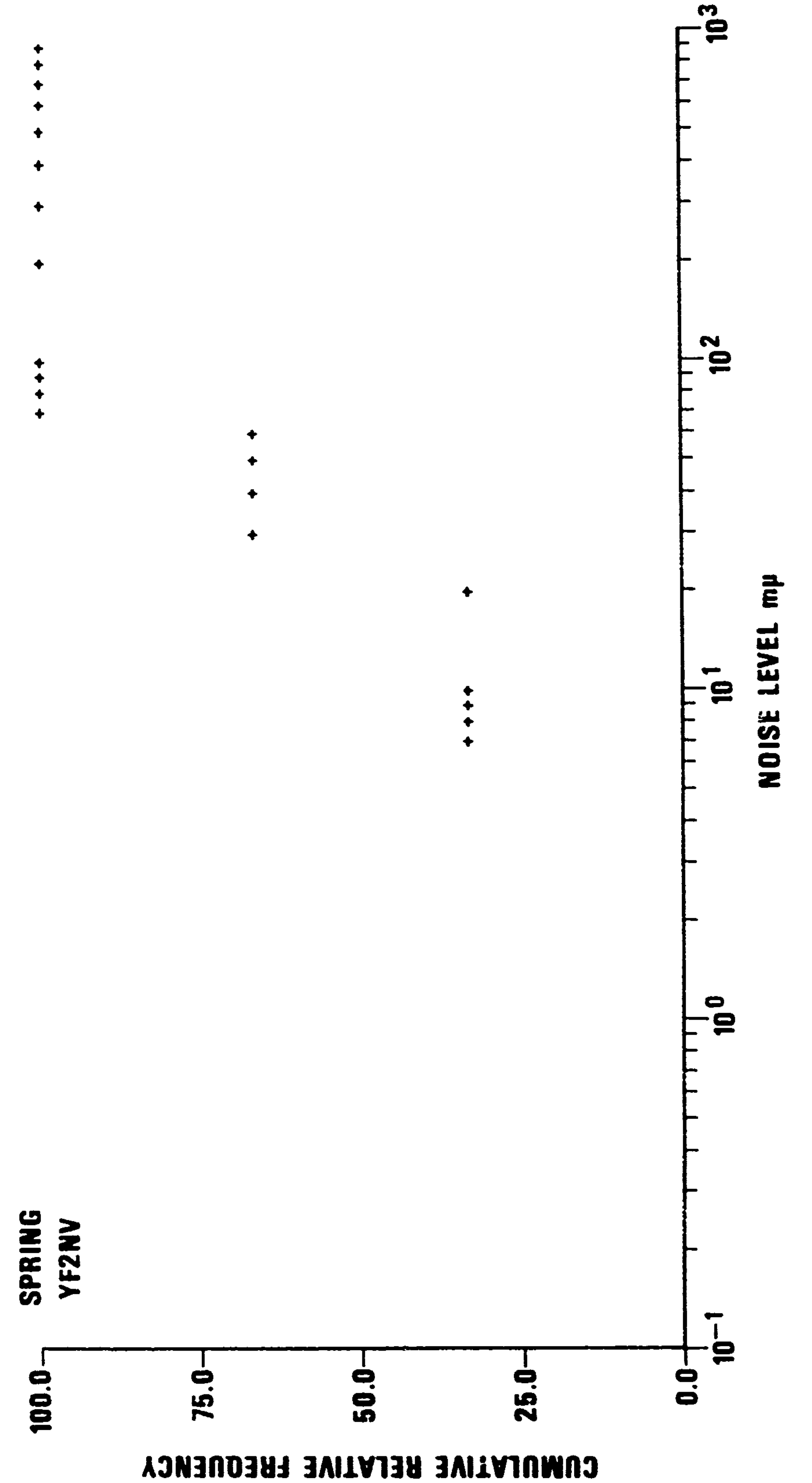
10^{2}
10^{3}
NOISE LEVEL mµ


SPRING
YF2NV
CUMULATIVE RELATIVE FREQUENCY
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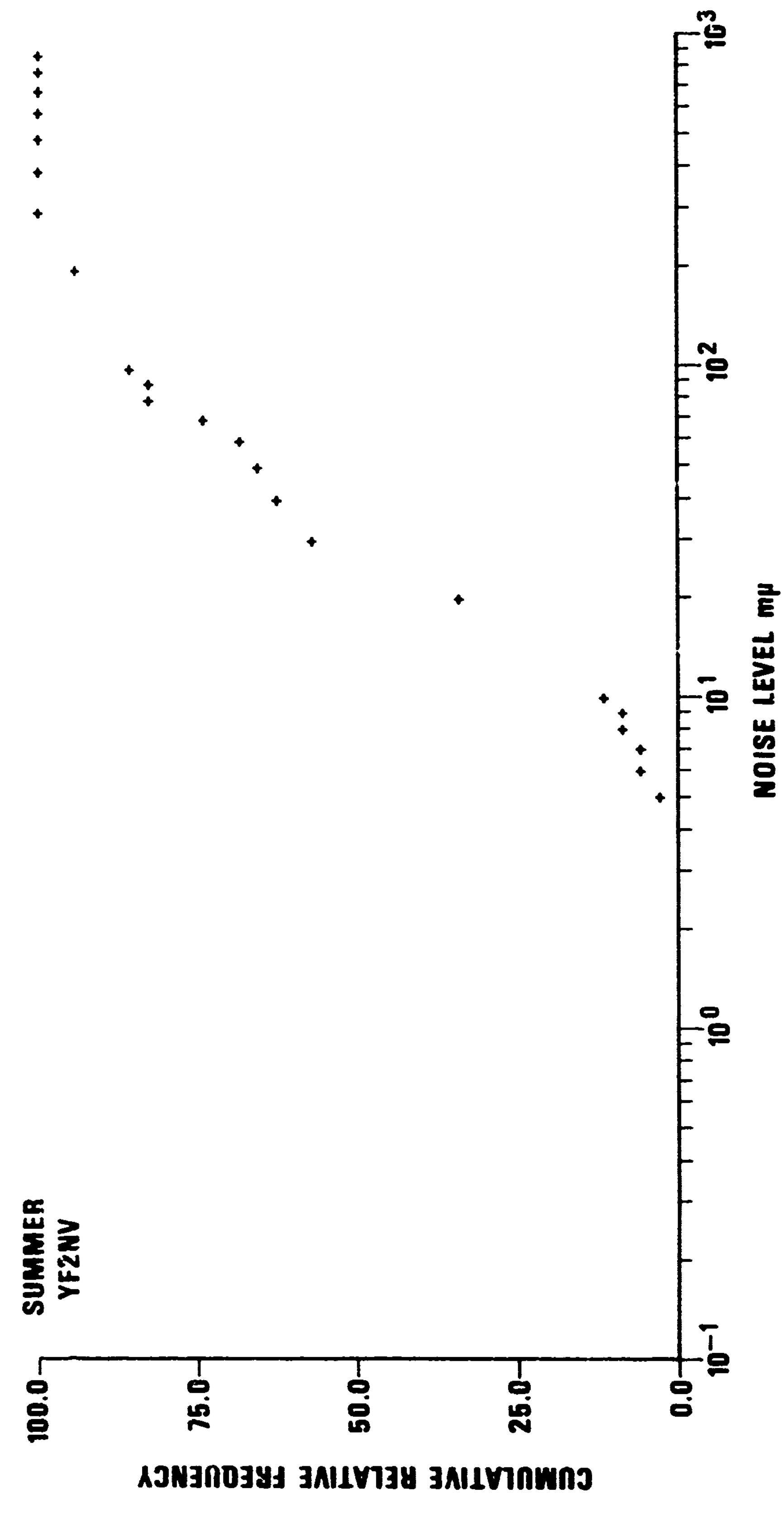
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ


SUMMER
YF2NV
100.0
75.0
50.0
25.0
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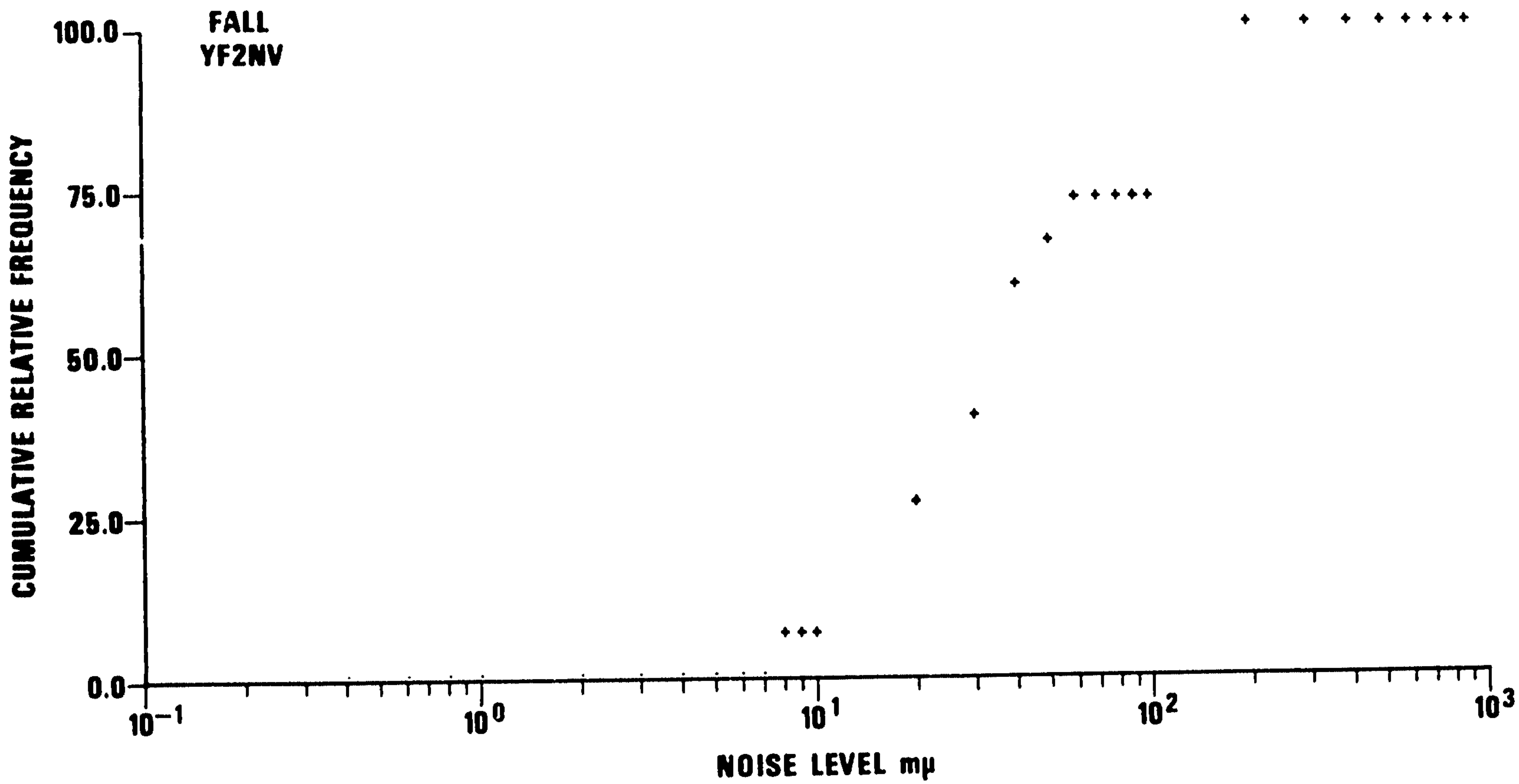
CUMULATIVE RELATIVE FREQUENCY
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


FALL
YF2NV
CUMULATIVE RELATIVE FREQUENCY
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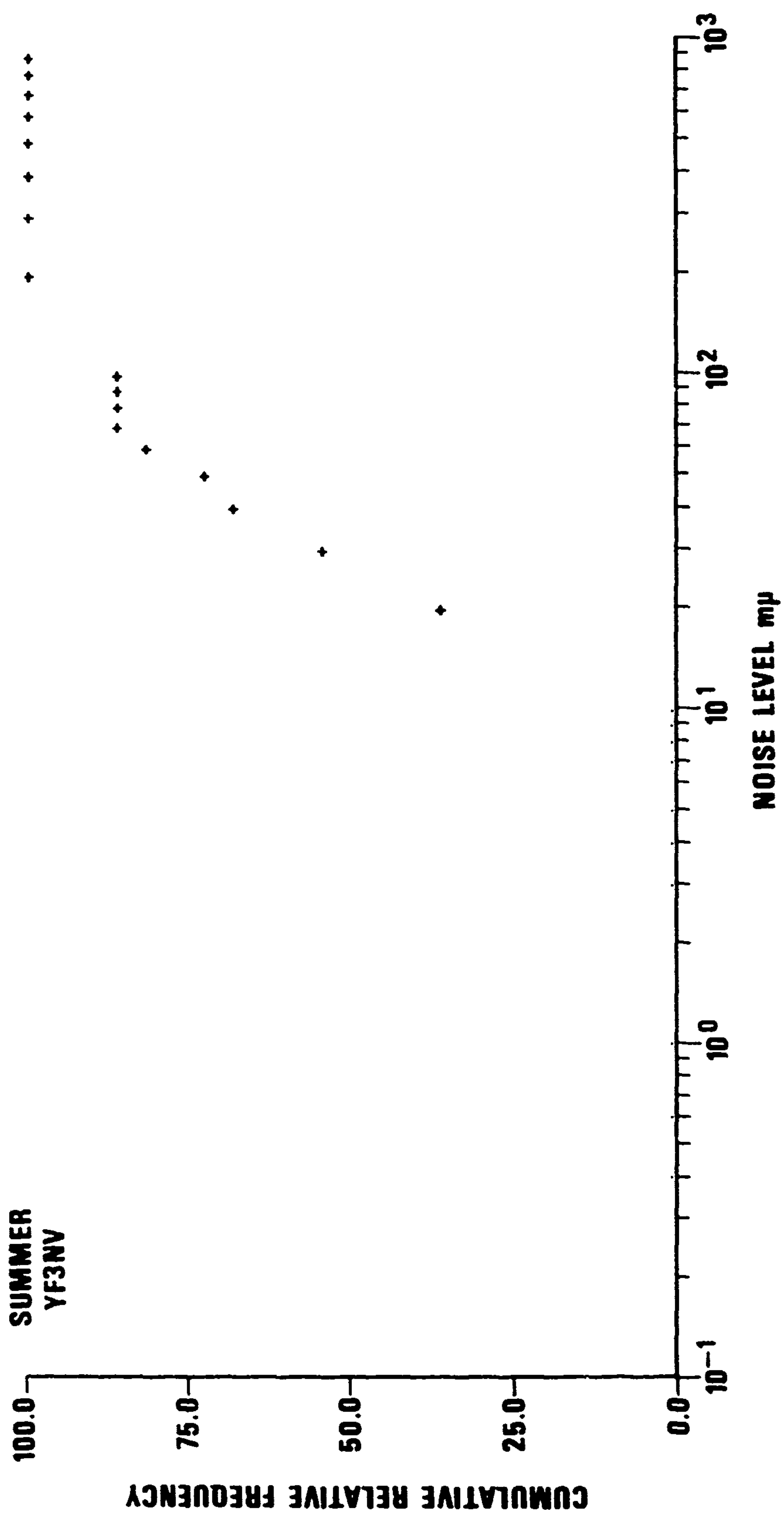
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


SUMMER
YF3NV
CUMULATIVE RELATIVE FREQUENCY
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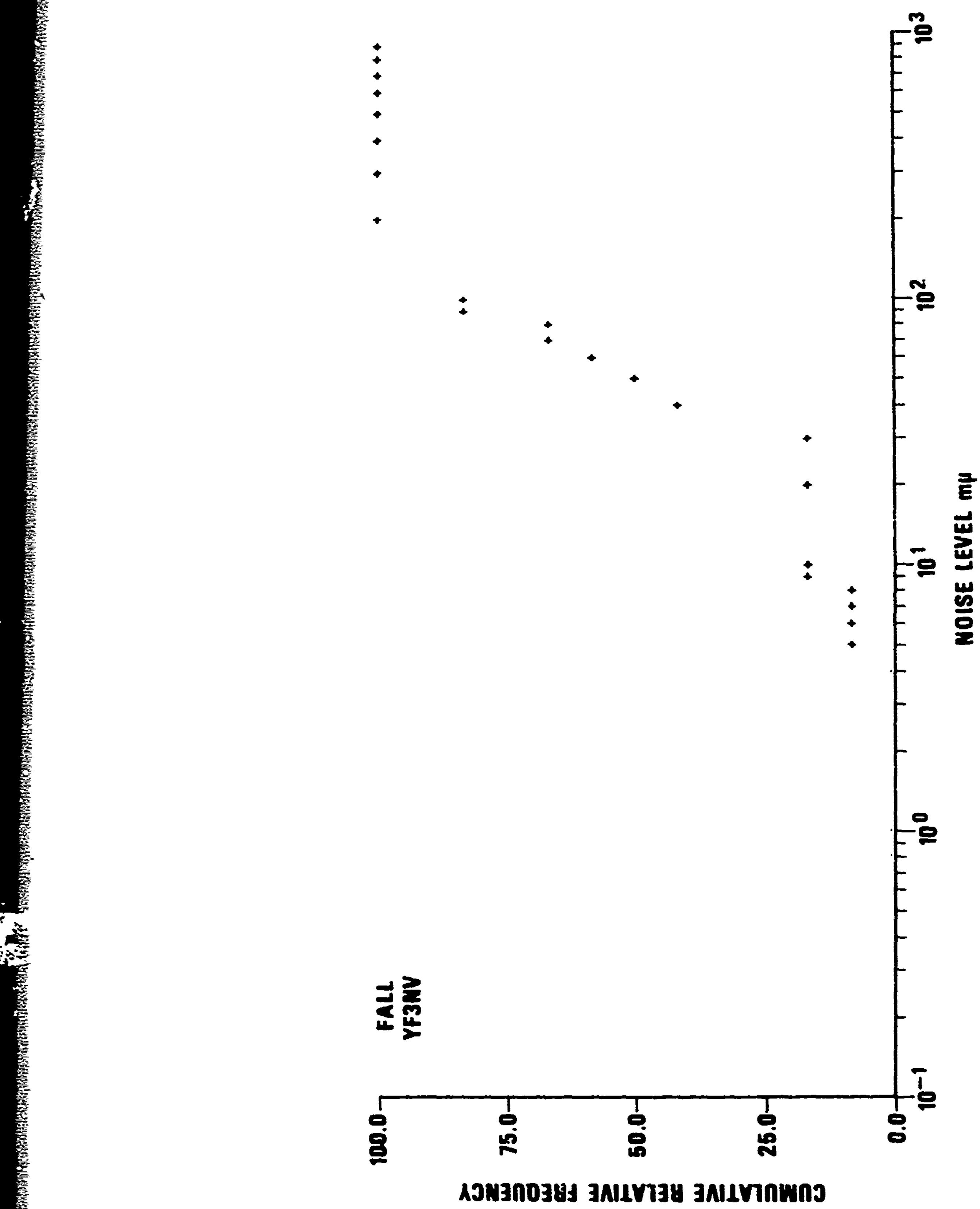
50.0
25.0
0.0
10−1
10⁰
10¹
10²
10³
NOISE LEVEL mμ


FALL
YF3NV
CUMULATIVE RELATIVE FREQUENCY
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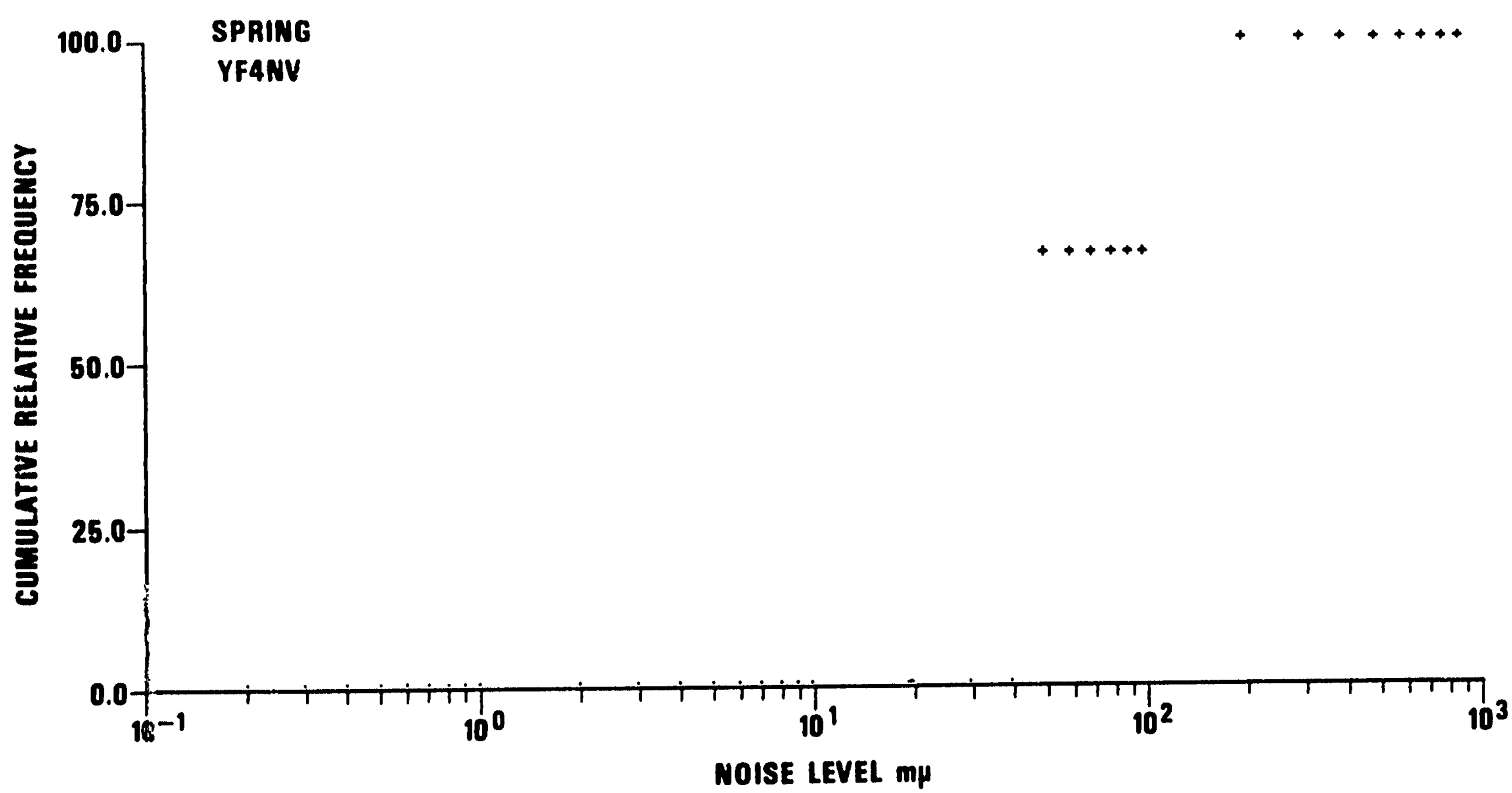
50.0
25.0
0.0
10⁻¹
10⁰
10¹
10²
10³
NOISE LEVEL mμ


SPRING
YF4NV
CUMULATIVE RELATIVE FREQUENCY
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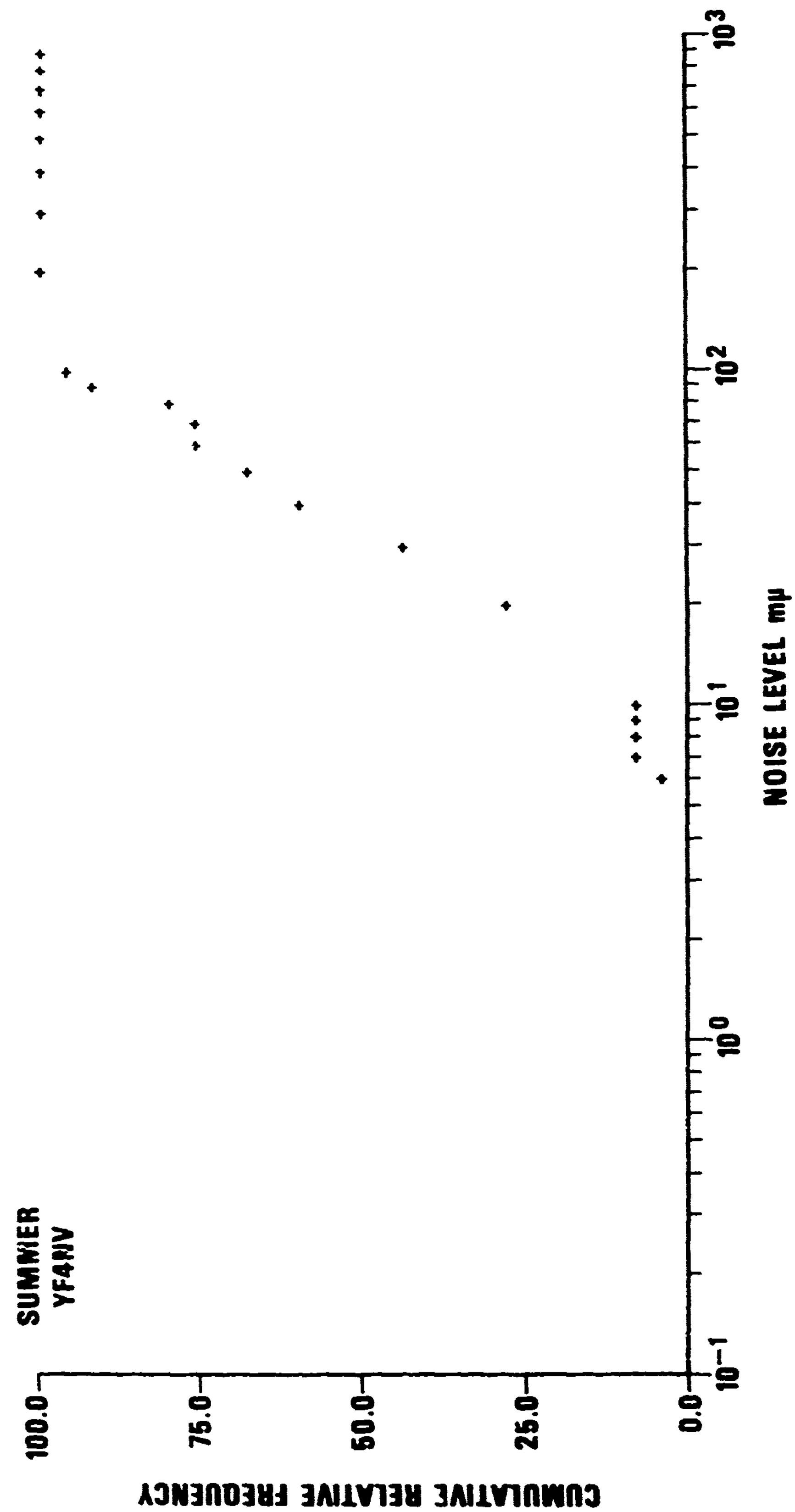
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ



SUMMER
YF4NV
CUMULATIVE RELATIVE FREQUENCY
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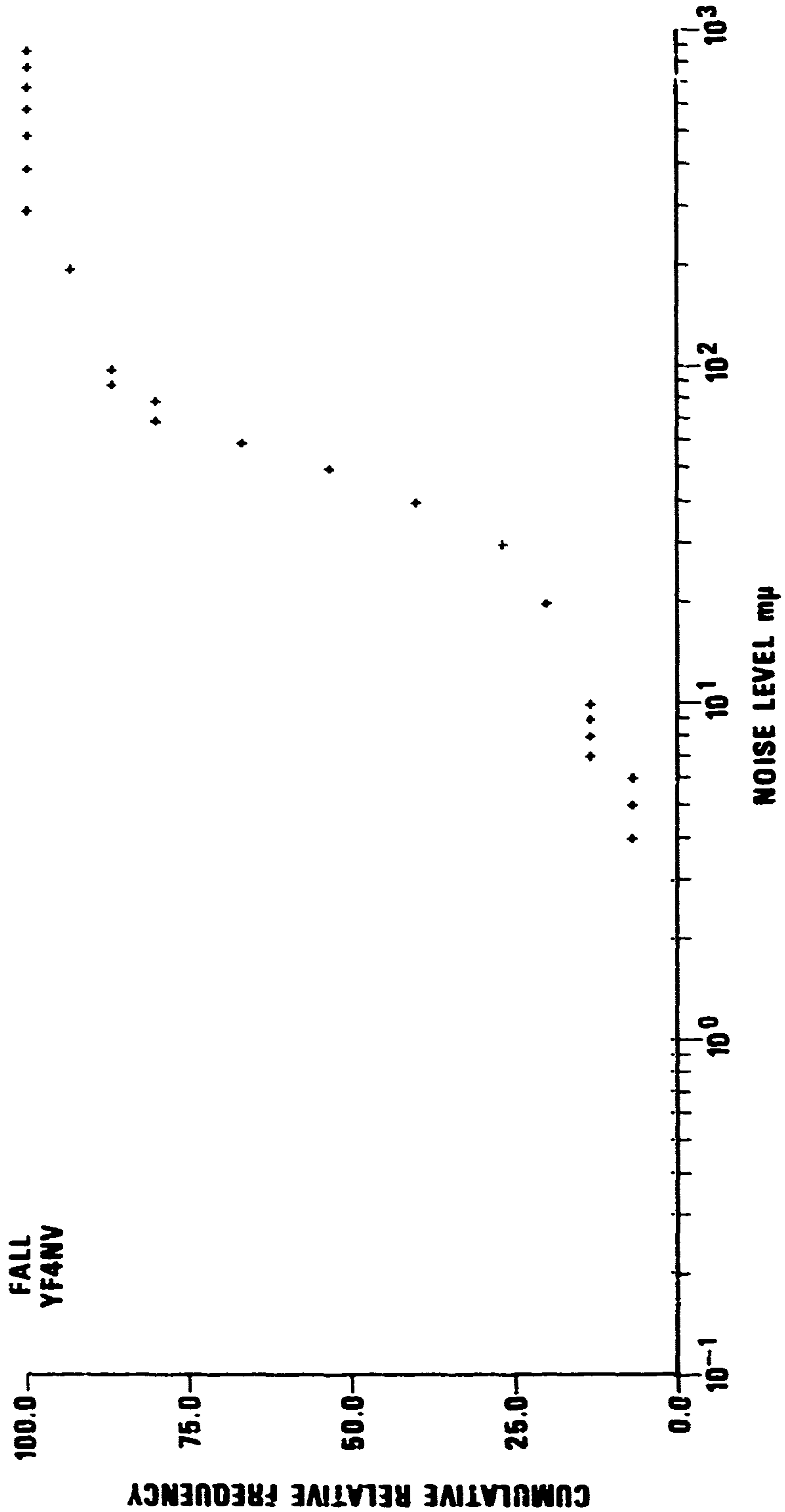
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


FALL
YF4NV
CUMULATIVE RELATIVE FREQUENCY
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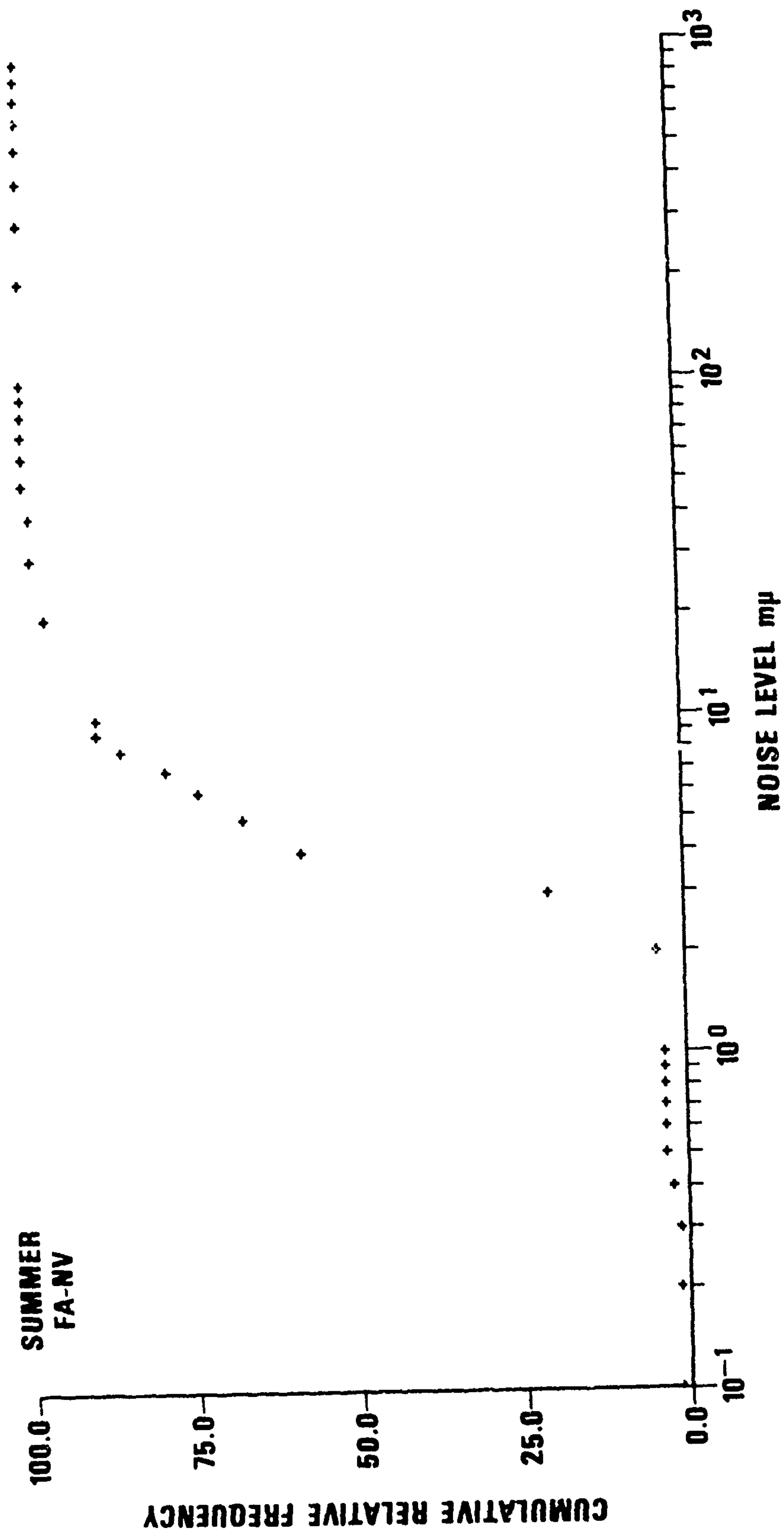
10^{1}
10^{2}
10^{3}
NOISE LEVEL mµ


SUMMER
FA-NV
CUMULATIVE RELATIVE FREQUENCY
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NOISE LEVEL mμ
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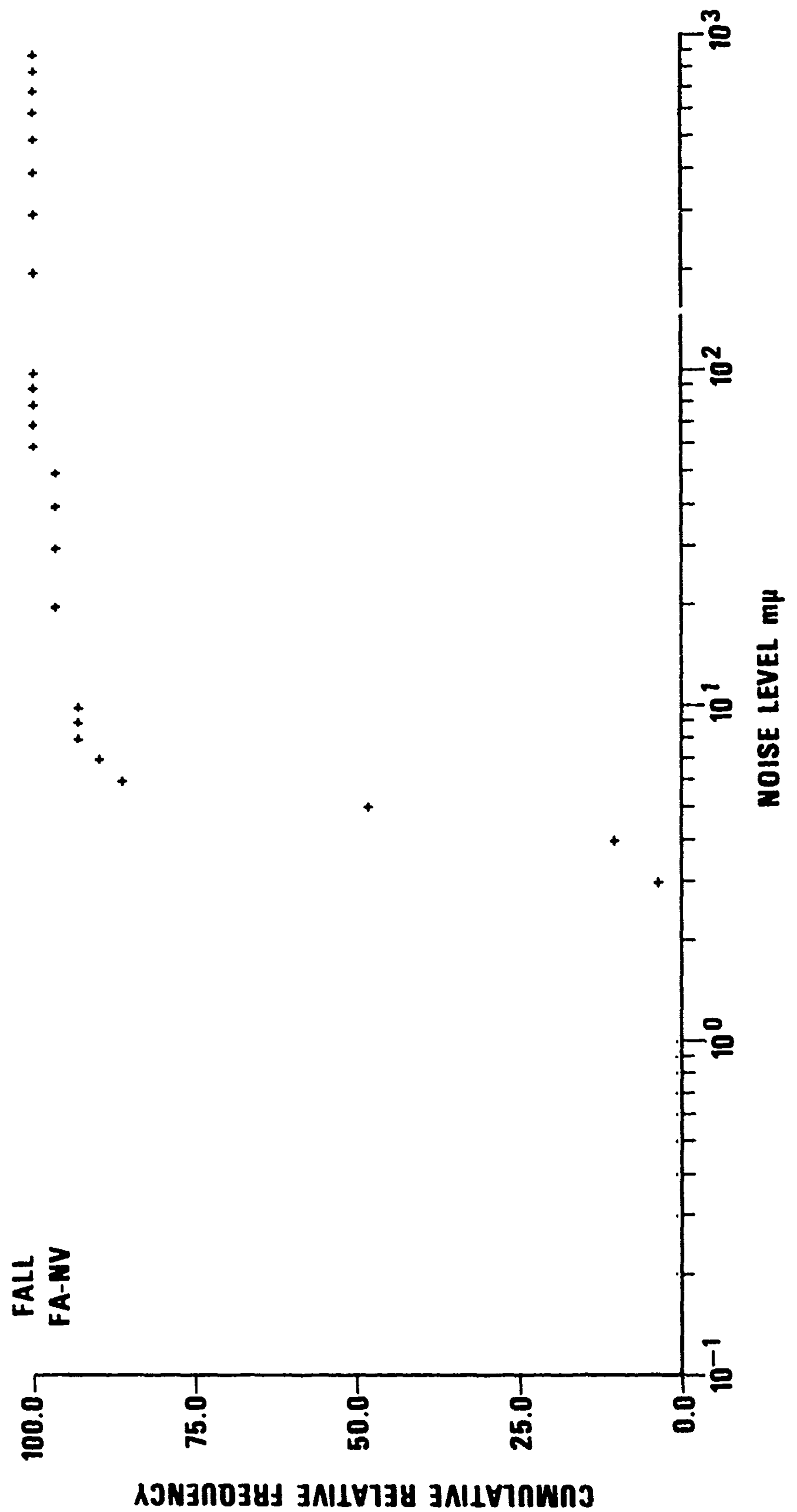
10^{0}
10^{1}
10^{2}
10^{3}


FALL
FA-NV
CUMULATIVE RELATIVE FREQUENCY
100.0
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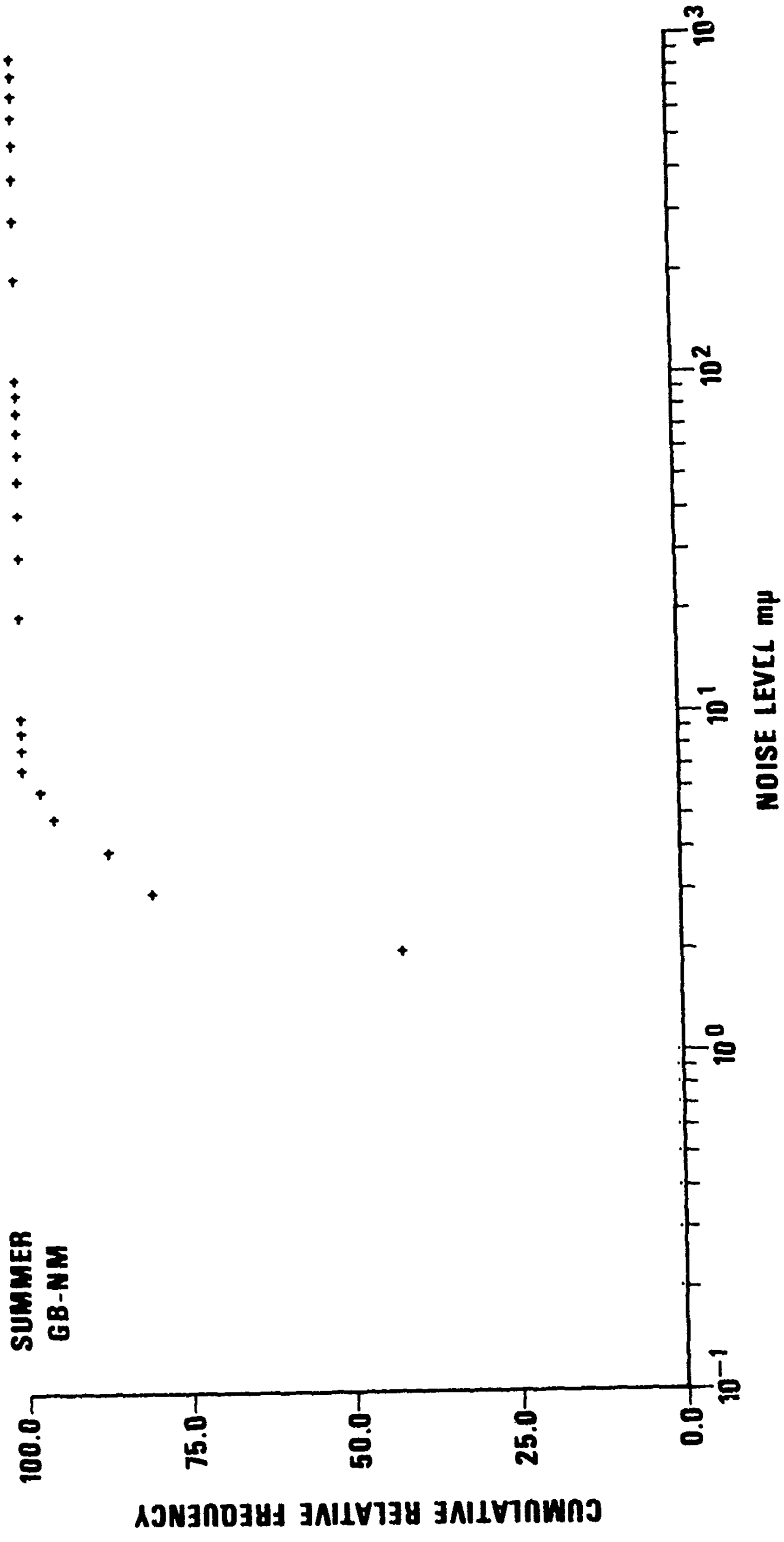
25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
NOISE LEVEL mμ


SUMMER
GB-NM
CUMULATIVE RELATIVE FREQUENCY
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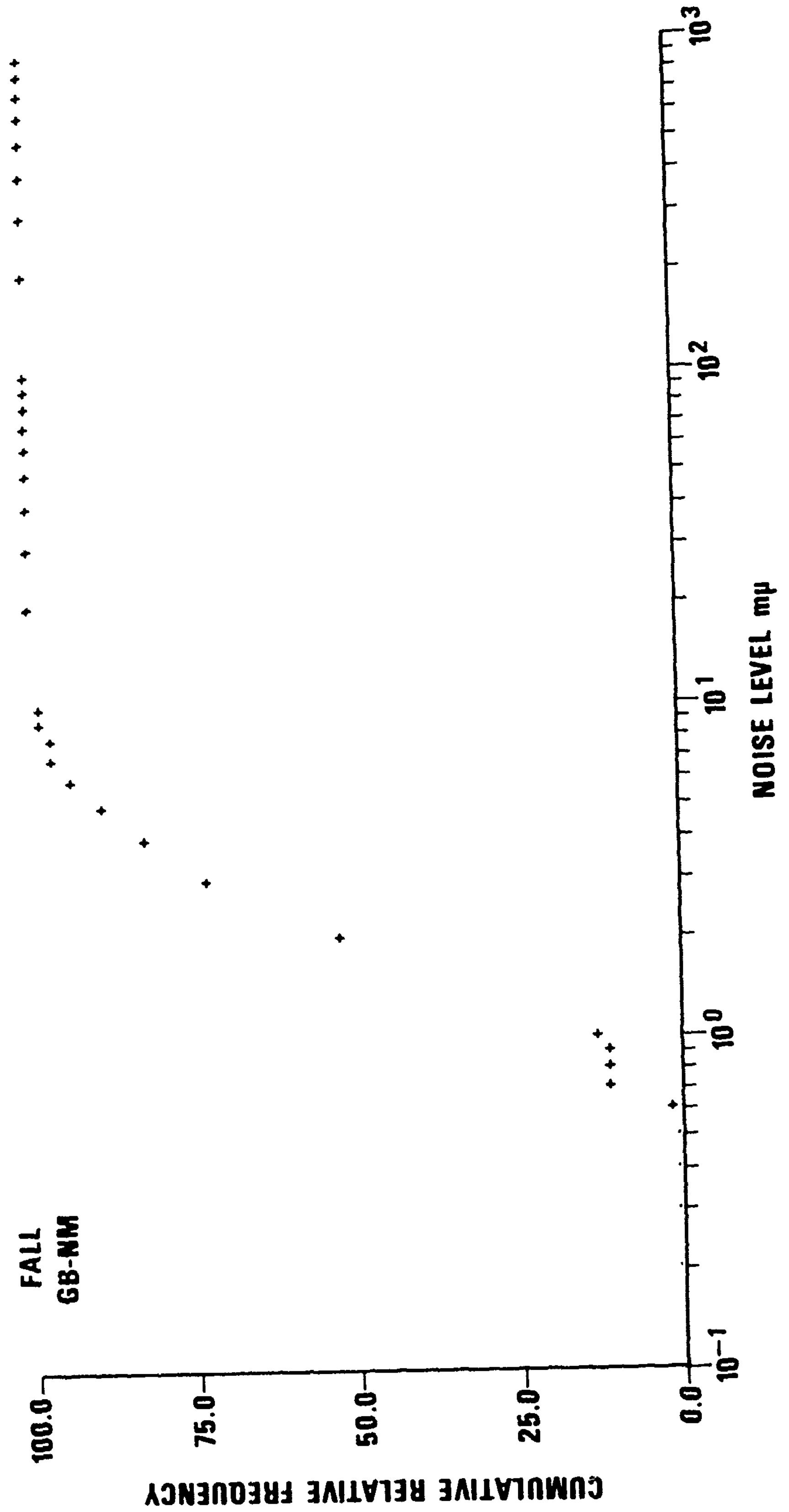
0.0
NOISE LEVEL mμ
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}


FALL
GB-NM
NOISE LEVEL mµ
CUMULATIVE RELATIVE FREQUENCY
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25.0
0.0
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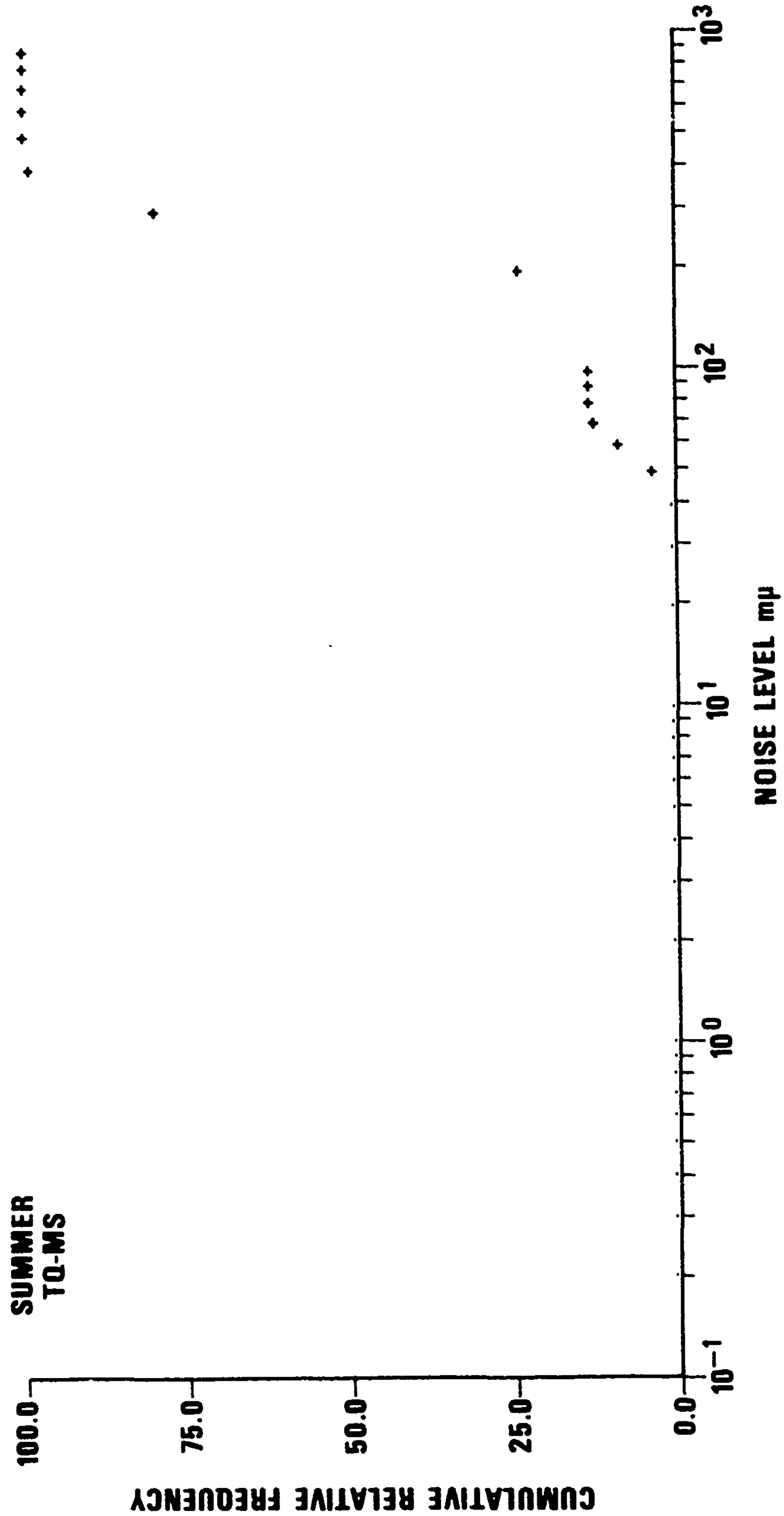
10^{0}
10^{1}
10^{2}
10^{3}


SUMMER
TQ-MS
CUMULATIVE RELATIVE FREQUENCY
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0.0
NOISE LEVEL mμ
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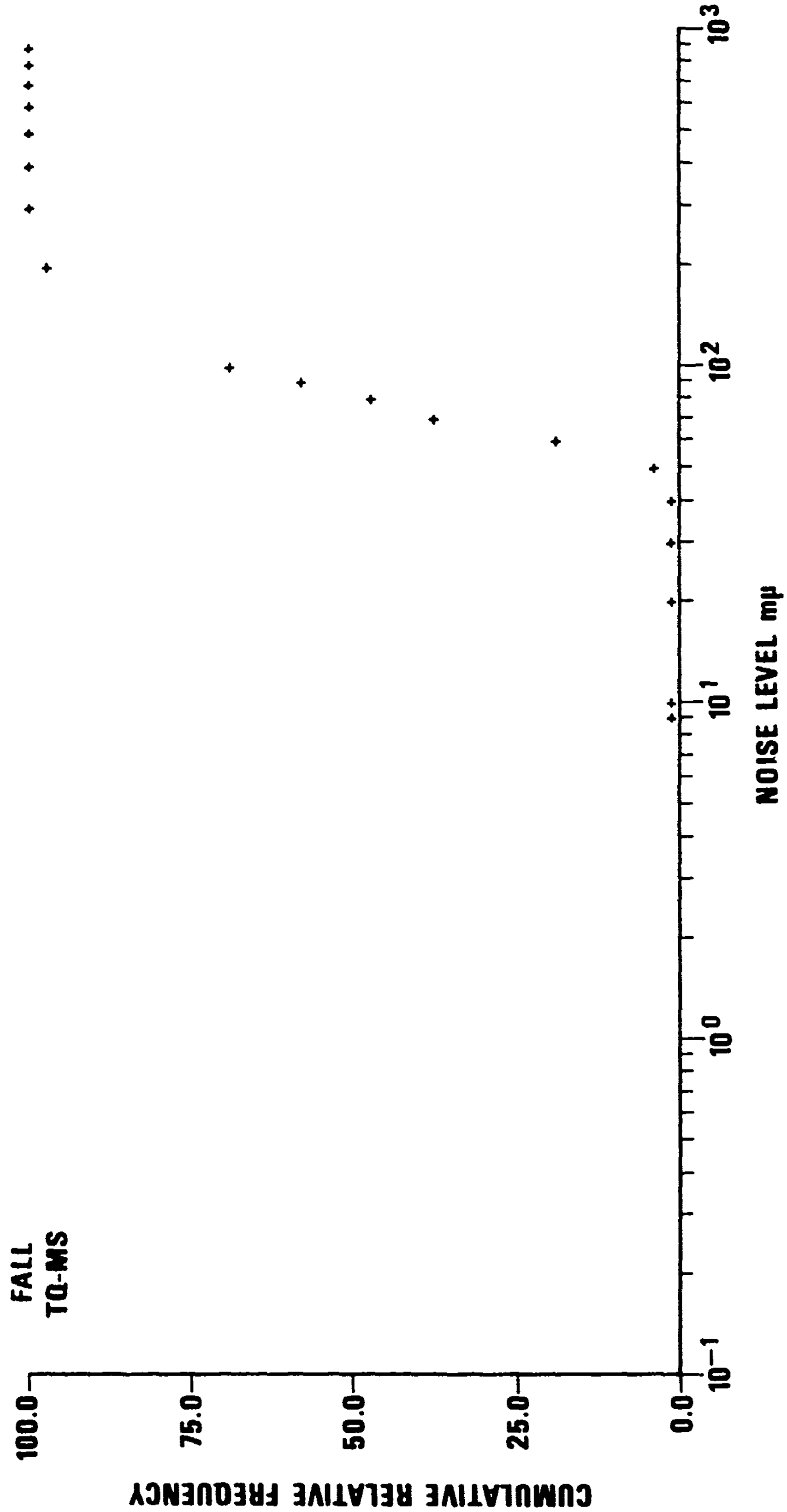
10^{0}
10^{1}
10^{2}
10^{3}


FALL
TQ-MS
NOISE LEVEL mp
CUMULATIVE RELATIVE FREQUENCY
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75.0
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25.0
0.0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}